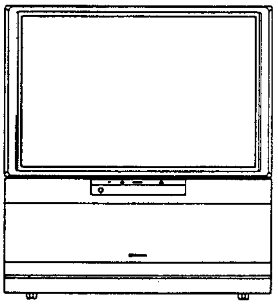
Service Manual

PIONEER
The Art of Entertainment



The illustration shows model SD-P5185-K.

ORDER NO.
ARP2880

PROJECTION MONITOR RECEIVER

SD-P5185-K

SD-P5183-K

SD-P4683-K

PRO-98

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model				Power Requirement	Remarks
	SD-P5185-K	SD-P5183-K	SD-P4683-K	PRO-98		
KUX1C	○	○	○	○	AC 120V	

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTES
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

1. SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.
The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled.
   Keep picture tube away from the body while handling.
2. When service is required, even though the PROJECTION MONITOR RECEIVER an isolation transformer should be inserted between power line and the set in safety before any service is performed.
3. The cut metallic sides of internal chassis, frames, etc. of the product may be burred in some cases. Therefore be careful not to injure your hands, etc. when handling the chassis, frame, etc.
4. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
5. When service is required, observe the original lead dress.
   Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
6. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's.
   Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
7. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacturer has become defective, or inadvertently defeated during servicing.

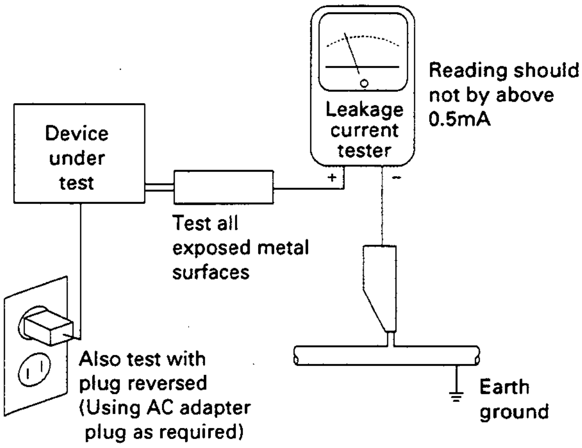
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

Leakage Current Cold Check

With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/ output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3MΩ and a maximum resistor reading of 5MΩ. Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into a 120V AC 60Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on.
Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input / output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.


Device under test
Leakage current tester
Reading should not by above 0.5mA
+
-
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

High Voltage

This set is provided with a X-ray protection for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this X-ray protection may correctly be operated.

Serviceman Warning

In the status of the black picture (video muting is being applied) when no signal is input, high voltage of this set during operation is less than 30.5kV. In case any component having some relation to the high voltage is replaced, confirm that the high voltage is lower than 30.5kV in the status of the black picture when no signal is input.
To measure H.V. use a high impedance H.V. meter.
Connect (-) to earth and (+)to the FBT anode cable connector.
(Refer to page 128)

X-radiation

TUBE: The primary source of X-radiation in this set is the picture tube.
For continued X-radiation protection, the replacement tube must be the same type as the original, PIONEER approved type.
The picture tube (CRT assy R, G, B) use in this set holds complete guarantee against X-ray radiation when the X-ray is sealed (See page 4). Accordingly, when the current in flowing to the picture tube (CRT assy R, G, B), be sure to perform it by putting the tube into X-ray sealed applied state. Avoid absolutely to flow the current to the picture tube (CRT assy R, G, B) itself. Moreover, when the voltage of the high voltage circuit becomes abnormally a little higher, the picture tube radiates X-rays. Accordingly, when servicing the high voltage circuit be sure to replace as an assy with the POWER SUPPLY assy in the manner in which has been adjusted to perform normal operation.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards.
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

3. CHARGED SECTION, HIGH VOLTAGE GENERATING POINT AND X-RAY PROTECTION

■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

■ Charged section (Power supply primary side)

1. The primary side of the POWER SUPPLY assy
2. AC power cord
3. MAIN POWER switch

▨ part is the charged section.

░ part is the high voltage generating points other than the charged section.

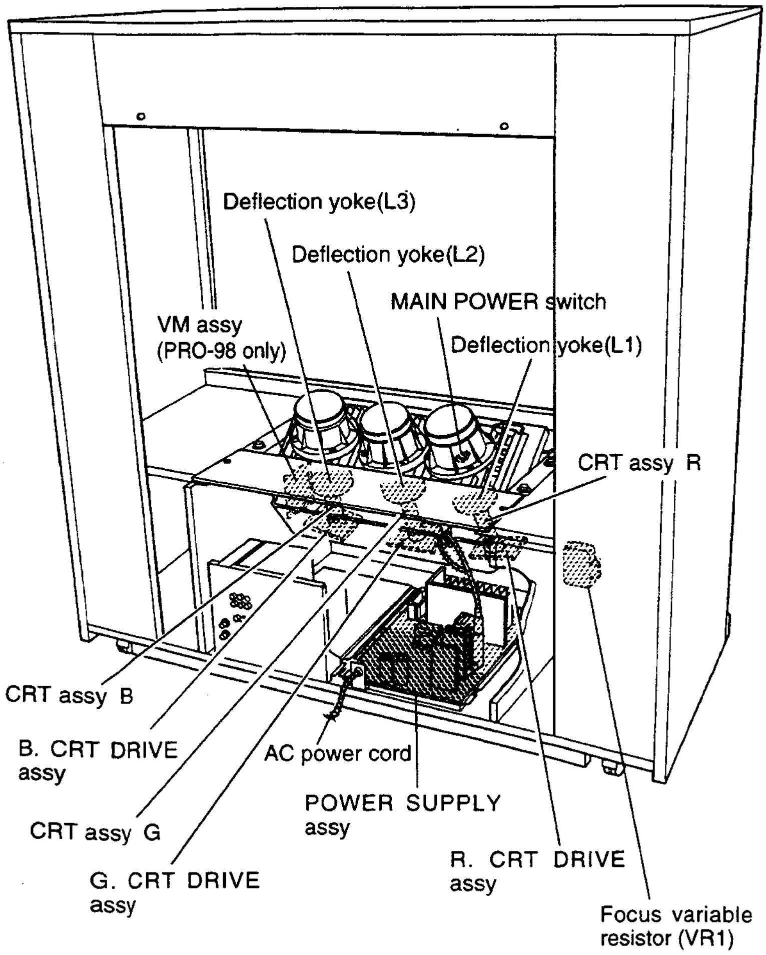


Fig. 1 Charged section and high voltage generating point

■ High voltage generating point

The place where voltage of over 100V is generated.

1. Charged section	
2. POWER SUPPLY assy (including FBT)	(30.0kV, 135V)
3. R. CRT DRIVE assy	(10.5kV)
4. G. CRT DRIVE assy	(10.5kV)
5. B. CRT DRIVE assy	(10.5kV)
6. VM assy(PRO-98 only)	(135V)
7. CRT assy R	(30.0kV)
8. CRT assy G	(30.0kV)
9. CRT assy B	(30.0kV)
10. Focus variable resistor(VR1)	(10.5kV)
11. Deflection yokes (L1, L2 and L3)	Approx. 1100V at perk

■X-ray protection

- ●Regarding the parts which are relative to radiation of X-rays (There is the danger to radiate X-ray from the individual CRT assy R, G, B), there are notifications of caution in the individual schematic diagrams. Be sure to read them for safety's sake.
- ●The component parts for X-ray protection are as follows : When the current flows to the CRT assy R, G, B, by sure to perform it with these parts being attached. Protection from the X-ray radiation is maintained in the state in which these parts have been installed to the CRT assy R, G, B. Accordingly, never supply current only to the CRT assy R,G,B.
  Moreover, the anode voltage of the CRT assy R, G, B should always be kept not higher than the predetermined value (in the minimum brightness and picture state when non signal input is higher than 30.5kV). Be sure to drive the CRT assy R, G, B by using a completely functional POWER SUPPLY assy which have been adjusted completely in the combined state. (When the voltage abnormally becomes high, the X-ray protection circuit will operate.)

1. CRT assy R, G, B (Do not dismantle CRT assemblies under any circumstances.)
2. Each Lens assy

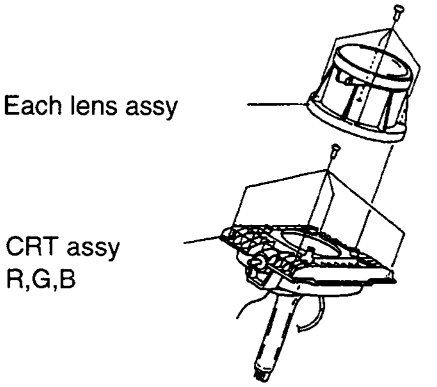


Fig. 2 Component parts for X-ray protection

4. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *Parts marked by ☆ are important parts which relate to X-rays radiation.*
  If any of these parts need to be replaced, always replace with specified parts.

Mark	No.	Description	Part No.
⚠☆	1	POWER SUPPLY ASSY (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AWV1499
⚠☆	1	POWER SUPPLY ASSY (PRO-98)	AWV1500
⚠☆	2	CRT ASSY 51(G) (SD-P5185-K AND SD-P5183-K)	AWY1320
⚠☆	2	CRT ASSY 51(G)(PRO-98)	AWY1326
⚠☆	2	CRT ASSY 46(G)(SD-P4683-K)	AWY1314
⚠☆	3	CRT ASSY 51(R) (SD-P5185-K AND SD-P5183-K)	AWY1321
⚠☆	3	CRT ASSY 51(R)(PRO-98)	AWY1327
⚠☆	3	CRT ASSY 46(R)(SD-P4683-K)	AWY1315
⚠☆	4	CRT ASSY 51(B) (SD-P5185-K AND PRO-98)	AWY1322
⚠☆	4	CRT ASSY 46(B)(SD-P4683-K)	AWY1316
	5	U-COM•TUNER ASSY (SD-P5185-K)	AWV1484
	5	U-COM•TUNER ASSY (SD-P5183-K AND SD-P4683-K)	AWV1483
	5	U-COM•TUNER ASSY (PRO-98)	AWV1485
	6	CONVERGENCE ASSY	AWZ5981
	7	R.CRT DRIVE ASSY	AWZ5982
	8	G.CRT DRIVE ASSY	AWZ5983
	9	B.CRT DRIVE ASSY	AWZ6009
	10	POWER SW ASSY	AWZ5984
	11	AV I/O ASSY (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AWZ5985
	11	AV I/O ASSY (PRO-98)	AWZ5986
	12	Y/C SELECTOR ASSY (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AWZ5987
	12	Y/C SELECTOR ASSY (PRO-98)	AWZ5988
	13	FRONT CONTROL ASSY (SD-P5185-K)	AWZ5990
	13	FRONT CONTROL ASSY (SD-P5183-K AND SD-P4683-K)	AWZ5989
	13	FRONT CONTROL ASSY(PRO-98)	AWZ6002
	14	P IN P SELECTOR ASSY	AWZ5993
	15	SYSTEM CONTROL ASSY (SD-P5185-K AND PRO-98 ONLY)	AWZ5998
	16	PHOTO DIODE ASSY (SD-P5185-K AND PRO-98 ONLY)	AWZ7657
	17	RF AMP ASSY (SD-P5185-K AND PRO-98 ONLY)	AWZ7658
	18	CONVERGENCE PD ASSY	AWZ5991

Mark	No.	Description	Part No.
	19	P IN P ASSY	AWZ5992
	20	A CONNECTOR ASSY	AWZ5994
	21	B CONNECTOR ASSY	AWZ5995
	22	C CONNECTOR ASSY	AWZ5996
	23	RELAY DRIVE ASSY	AWZ5999
	24	SUB CONVERGENCE ASSY	AWZ6001
	25	VM ASSY (PRO-98 ONLY)	AWZ5997
	26	FRONT INPUT ASSY (PRO-98 ONLY)	AWZ6003
	27	IR RECEIVER ASSY (PRO-98 ONLY)	AWZ6004
	28	PRO S.G ASSY(PRO-98 ONLY)	AWZ6005
	29	CENTER SP SW ASSY (PRO-98 ONLY)	AWZ6006
	30	SUB RECEIVE ASSY (PRO-98 ONLY)	AWZ6007
	31	EXT. SP ASSY(PRO-98 ONLY)	AWZ6008
⚠	32	VR1 FOCUS VR	ACX1096
⚠	33	L1 DEFLECTION YOKE	ATL1112
⚠	34	L2 DEFLECTION YOKE	ATL1112
⚠	35	L3 DEFLECTION YOKE	ATL1112
⚠	36	FU104 FUSE(6.3A, 125V)	AEK-309
⚠	37	FU102 FUSE(4A, 125V)	AEK1018
⚠	38	FU105 FUSE(4A, 125V)	AEK1018
	39	CONE SPEAKER	APV1021
	40	MINI REPEATER (SD-P5185-K AND PRO-98 ONLY)	ADF1002
⚠	41	AC POWER CORD	ADG1058
	42	MAIN REPEATER (SD-P5185-K AND PRO-98 ONLY)	AXF1079
	43	J11 4P HOUSING WIRE	ADX2179
	44	J4 1P LEAD WIRE	ADX2180
	45	J5 1P LEAD WIRE	ADX2181
	46	J6 1P LEAD WIRE	ADX2182
	47	J7 1P LEAD WIRE	ADX2183
	48	J8 1P LEAD WIRE	ADX2184
	49	J9 1P LEAD WIRE	ADX2185
	50	J2 2P HOUSING WIRE	ADX2187
	51	WIRE HARNESS	ADX2195
	52	J24 4P HOUSING WIRE (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	ADX2196
	53	• • • • •	

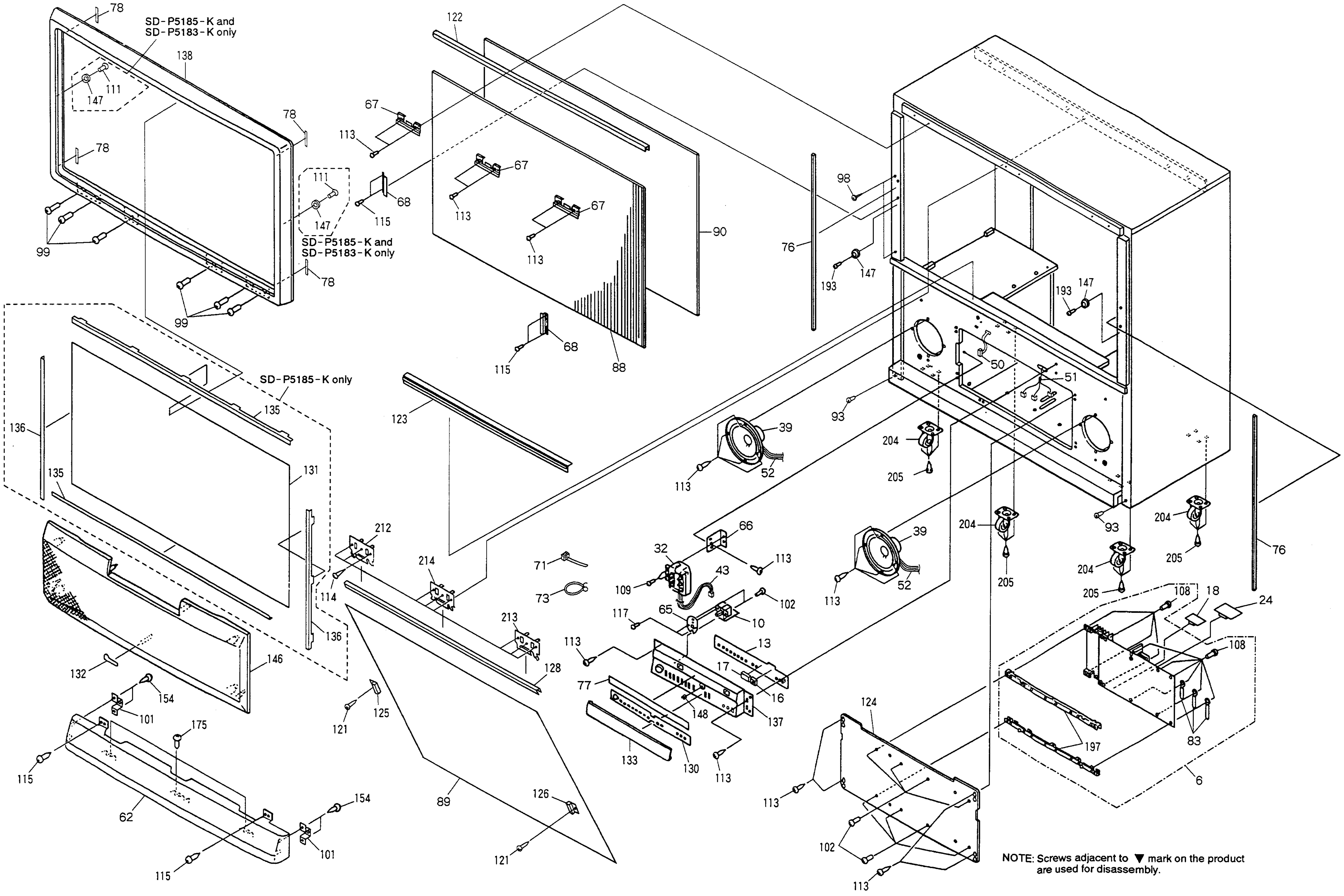
Mark	No.	Description	Part No.
	54	J11 8P HOUSING WIRE (PRO-98 ONLY)	ADX2199
	55	J12 7P HOUSING WIRE (PRO-98 ONLY)	ADX2200
⚠	56	J1 ANODE CABLE (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	ADY1012
⚠	56	J1 ANODE CABLE (PRO-98)	ADY1022
NSP	57	CRT STAND (51) (SD-P5185-K, SD-P5183-K AND PRO-98)	ANA1500
NSP	57	CRT STAND (46) (SD-P4683-K)	ANA1501
NSP	58	CRT STAND HOLDER L	ANA1503
NSP	59	CRT STAND HOLDER R	ANA1504
NSP	60	CHASSIS R	ANA1505
	61	REAR PANEL (SD-P5185-K)	ANC2259
	61	REAR PANEL (SD-P5183-K AND SD-P4683-K)	ANC2258
	61	REAR PANEL (PRO-98)	ANC2260
	62	BOTTOM RAIL 51 (SD-P5185-K AND SD-P5183-K ONLY)	AMR2714
	62	BOTTOM RAIL 46 (SD-P4683-K ONLY)	AMR2715
NSP	63	CORD PLATE	ANG1650
NSP	64	PCB FRAME	ANG1849
NSP	65	SWITCH HOLDER (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	ANG1945
NSP	66	VR HOLDER	ANG1956
NSP	67	SCREEN METAL FITTING (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	ANG1992
NSP	68	SCREEN SIDE FITTING	ANG1993
NSP	69	DOLBY MOD. STAY (SD-P5185-K AND PRO-98 ONLY)	ANG1999
	70	• • • • •	
	71	NYLON BINDER	AEC-093
	72	RIVET (SD-P5185-K AND PRO-98 ONLY)	AEC-441
NSP	73	PURSE LOCK S	AEC1261
	74	V ROCK 20M	AEC1610
NSP	75	LEAD CLAMPER M	AEC1611
	76	SCREEN CUSHION 51 (SD-P5185-K AND SD-P5183-K)	AEC1612
	76	SCREEN CUSHION 46 (SD-P4683-K)	AEC1616
	76	SCREEN CUSHION 51P (PRO-98)	AEC1621
	77	INDICATOR PANEL (SD-P5185-K)	AAK2618
	77	INDICATOR PANEL (SD-P5183-K)	AAK2620
	77	INDICATOR PANEL (SD-P4683-K)	AAK2625
	78	FRAME CUSHION (SD-P5185-K AND SD-P5183-K)	AEC1618
	78	FRAME CUSHION 46 (SD-P4683-K ONLY)	AEC1619
	79	BLIND SHEET(PVC)	AEC1622
	80	BACK COVER CUSHION	AEC1625
	81	MIRROR CASE CUSHION	AEC1627
	82	AC CORD STOPPER	AEP-113
	83	BINDER	AEP-215
☆	84	LENS ASSY (51) (SD-P5185-K, SD-P5183-K AND PRO-98 ONLY)	AMR2719
☆	85	LENS ASSY (R) (SD-P4683-K ONLY)	AMR2387
☆	86	LENS ASSY (G) (SD-P4683-K ONLY)	AMR2388
☆	87	LENS ASSY (B) (SD-P4683-K ONLY)	AMR2389
	88	LENTICULAR SHEET(51) (SD-P5185-K AND SD-P5183-K)	AMR2726
	88	LENTICULAR SHEET(46) (SD-P4683-K)	AMR2730
	88	LENTICULAR SHEET(51) (PRO-98)	AMR2751
	89	MIRROR(51A)	AMR2735
	90	FRESNEL (51) (SD-P5185-K AND SD-P5183-K)	AMR2758
	90	FRESNEL (46) (SD-P4683-K)	AMR2759
	90	FRESNEL (51) (PRO-98)	AMR2754
	91	SPECIAL SCREW	ABA1080
	92	SCREW	ABA1099
	93	SPECIAL SCREW	ABA1121
	94	SCREW	ABA1149
	95	SCREW	ABA1168
	96	SCREW	ABA1188
	97	M5 SCREW	ABA1189
	98	SCREW	ABA1190
	99	SPECIAL SCREW (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	ABA1225
	100	SPECIAL SCREW (PRO-98 ONLY)	ABA1226
NSP	101	BOTTOM RAIL HOLDER (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	ANG1991
	102	SCREW	ABZ30P080FZK
	103	SCREW	ABZ30P120FZK
	104	SCREW	ACZ40P080FMC
	105	SCREW	AMZ40P080FZK
	106	SCREW (PRO-98 ONLY)	APZ30P080FZK
	107	SCREW (PRO-98 ONLY)	APZ40P120FZK
	108	SCREW	BBZ30P080FZK
	109	SCREW	BBZ30P120FZK
	110	SCREW (PRO-98 ONLY)	BMZ40P100FZK
	111	SCREW (SD-P5185-K AND SD-P5183-K ONLY)	BPZ30P120FZK
	112	SCREW	PYC35T160FZK
	113	SCREW	BYC35P160FZK
	114	SCREW	BYC40P160FMC
	115	SCREW	BYC40P180FMC
	116	SCREW	FBT40P120FZK
	117	SCREW (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	PMB30P080FZK
	118	SCREW	VBT30P080FZK
	119	SCREW	VCZ30P060FMC

Mark	No.	Description	Part No.
	120	SCREW (PRO-98 ONLY)	VPZ40P120FMC
	121	SCREW	VPZ40P160FZK
	122	SCREEN HOLDER TOP 51 (SD-P5185-K AND SD-P5183-K)	AAP1500
	122	SCREEN HOLDER TOP 46 (SD-P4683-K)	AAP1501
	122	SCREEN HOLDER TOP 51P (PRO-98)	AAP1525
	123	SCREEN HOLDER LOW 51P (SD-P5185-K AND SD-P5183-K)	AAP1503
	123	SCREEN HOLDER LOW 46 (SD-P4683-K)	AAP1504
	123	SCREEN HOLDER LOW 51P (PRO-98)	AAP1522
	124	BLIND PLATE	AMM2414
	125	MIRROR SIDE HOLDER L	AMR2470
	126	MIRROR SIDE HOLDER R	AMR2471
NSP	127	TRAY (PLS)	AMR2563
	128	MIRROR FRAME H	ANG2019
NSP	129	ACRYLIC PANEL(51) (PRO-98 ONLY)	AAK2632
	130	CONTROL SHEET (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	AAK2619
	131	SCREEN COVER PANEL(51) (SD-P5185-K ONLY)	AAK2628
	132	BADGE (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AAM1069
	132	BADGE (PRO-98)	AAM1062
	133	DOOR (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	AAN1406
	134	DOOR ASSY (PRO-98 ONLY)	AAN1413
NSP	135	PANEL HOLDER (51H) (SD-P5185-K ONLY)	AAP1538
NSP	136	PANEL HOLDER (51V) (SD-P5185-K ONLY)	AAP1539
	137	CONTROL PANEL (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	AMB2524
	138	SCREEN FRAME ASSY 51A (SD-P5185-K)	AMB2550
	138	SCREEN FRAME ASSY 51 (SD-P5183-K)	AMB2547
	138	SCREEN FRAME ASSY 46 (SD-P4683-K)	AMB2548
	138	SCREEN FRAME ASSY 51 (PRO-98)	AAP1514
	139	FRAME COVER ASSY (51) (PRO-98 ONLY)	AAP1520
	140	FRAME COVER V (51) (PRO-98 ONLY)	AAP1536
	141	MIRROR CASE (51)	AME2296
NSP	142	BACK COVER PANEL 51 (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AMM2415
NSP	142	BACK COVER PANEL 51(B) (PRO-98)	AMM2507
	143	CORRUGATION BOARD CASE 51 (SD-P5185-K AND PRO-98 ONLY)	AHB1152
	144	REAR COVER	AMM2416
NSP	145	CRT BACK BOARD	AMM2417
	146	GRILLE 51 (SD-P5185-K AND SD-P5183-K)	AMR2711
	146	GRILLE 46 (SD-P4683-K)	AMR2712
	146	GRILLE (51) (PRO-98)	AMR2491
	147	MAGIC TAPE	AEC1394
	148	CATCHER F2M	AEC1609
	149	OPERATING INSTRUCTIONS (ENGLISH)(SD-P5185-K)	ARB1493
	149	OPERATING INSTRUCTIONS (ENGLISH)(SD-P5183-K AND SD-P4683-K)	ARB1492
	149	OPERATING INSTRUCTIONS (ENGLISH)(PRO-98)	ARB1495
	150	ATTENTION CARD	ARM1054
NSP	151	P IN P NOTES	ARM1066
NSP	152	SAFEGUARD CARD	ARM1075
	153	CONVER ATTENTION CARD	ARM1109
	154	SCREW (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	BYC35P120FZB
NSP	155	WARRANTY CARD (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	ARY1050
NSP	155	WARRANTY CARD (PRO-98)	ARY1026
	156	REMOTE CONTOROL(GUI) ASSY (CU-SD092) (SD-P5185-K AND PRO-98)	AXD1415
	156	REMOTE CONTOROL ASSY (CU-SD091) (SD-P5183-K AND SD-P4683-K)	AXD1416
	157	BATTERY COVER	AZN7187
NSP	158	ALKALINE BATTERY(LR6, AA)	AEX1018
	159	UPPER PAD L (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AHA2056
	159	UPPER PAD L (PRO-98)	AHA2067
	160	UPPER PAD R (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AHA2057
	160	UPPER PAD R (PRO-98)	AHA2068
	161	UNDER PAD L (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AHA2058
	161	UNDER PAD L (PRO-98)	AHA2069
	162	UNDER PAD R (SD-P5185-K, SD-P5183-K AND SD-P4683-K)	AHA2059
	162	UNDER PAD R (PRO-98)	AHA2070
NSP	163	CUSHION A	AHA2074
	164	CU PACKING CASE (SD-P5185-K AND PRO-98)	AHC1023
	164	CU PACKING CASE (SD-P5183-K AND SD-P4683-K)	AHC1019
	165	UPPER CARTON (51A) (SD-P5185-K)	AHD2799
	165	UPPER CARTON (51) (SD-P5183-K)	AHD2792
	165	UPPER CARTON (46) (SD-P4683-K)	AHD2797
	165	UPPER CARTON (51) (PRO-98)	AHD2807
	166	UNDER CARTON (51) (SD-P5185-K AND SD-P5183-K)	AHD2793
	166	UNDER CARTON (46) (SD-P4683-K)	AHD2798

Mark	No.	Description	Part No.
	166	UNDER CARTON (51) (PRO-98)	AHD2808
	167	CORRUGATION BOARD SPACER (51A) (SD-P5185-K ONLY)	AHB1159
	167	CORRUGATION BOARD SPACER (51) (PRO-98 ONLY)	AHB1161
NSP	168	PACKING SEAT M	AHG1094
NSP	169	VINYL SEAT XL	AHG1095
NSP	170	PACKING SHEET	AHG1156
NSP	171	PACKING SHEET(PRO-98 ONLY)	AHG1120
NSP	172	VINYL BAG(PRO-98 ONLY)	AHG1076
NSP	173	LITERATURE BAG	AHG1222
NSP	174	SCREEN SHEET (51)	AHG1228
	175	SCREW (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)	ABA1223
NSP	176	ACRYLIC PACKING SHEET(51) (SD-P5185-K ONLY)	AHG1237
NSP	177	BNC SOCKET (PRO-98 ONLY)	AKX1036
	178	SUB PANEL ASSY(PRO-98 ONLY)	AMB2556
	179	SIDE PANEL ASSY (51L) (PRO-98 ONLY)	AMB2558
	180	SIDE PANEL ASSY (51R) (PRO-98 ONLY)	AMB2559
	181	FRONT PANEL ASSY (PRO-98 ONLY)	AMB2562
	182	BNC CAP (PRO-98 ONLY)	AMR2314
	183	SIDE COVER (PRO-98 ONLY)	AMR2573
NSP	184	CABINET UPPER HOLDER (PRO-98 ONLY)	ANG2000
NSP	185	SCREEN UPPER HOLDER A (PRO-98 ONLY)	ANG2001
NSP	186	SCREEN UPPER HOLDER B (PRO-98 ONLY)	ANG2002
NSP	187	SCREEN UNDER HOLDER A (PRO-98 ONLY)	ANG2003
NSP	188	SCREEN UNDER HOLDER B (PRO-98 ONLY)	ANG2009
NSP	189	FRONT SHIELD(PRO-98 ONLY)	ANK1502
NSP	190	CATCH A (PRO-98 ONLY)	ANZ-241
	191	CONE SPEAKER(TWEETER) (PRO-98 ONLY)	APT1004
	192	TECHNICAL NOTE (PRO-98 ONLY)	ARB1496
	193	SCREW	BYC35P160FZB
	194	ACRYLIC CAUTION CARD (SD-P5185-K)	ARH1149
	194	ACRYLIC CAUTION CARD (PRO-98)	ARH1146
	195	ATTENTION CARD (ELITE) (PRO-98 ONLY)	ARM1108
	196	VM COIL (PRO-98 ONLY)	ATL1121
NSP	197	CONVERGENCE STAY	AND1058
NSP	198	CHASSIS L	ANA1509
	199	SCREW	PPZ40P120FMC
	200	SCREW	ABZ30P100FMC
	201	BADGE BASE ASSY (PRO-98 ONLY)	AAK2641
NSP	202	CR HOLDER (PRO-98 ONLY)	ANG1867
⚠	203	FU101 FUSE (8A, 125V)	AEK1002
	204	CASTER	AMR2547
	205	SCREW	ABA1126
	206	COIL SPRING (PRO-98 ONLY)	ABH1099
NSP	207	SUB PANEL (PRO-98 ONLY)	AMB2555
	208	POWER KNOB (PRO-98 ONLY)	AAD4090
NSP	209	BADGE BASE (PRO-98 ONLY)	AAK2631
	210	TV FRONT-END SYSTEM UNIT	AXF1077
	211	RF SWITCH	AXF1078
NSP	212	MIRROR UPPER STAY L	ANG2004
NSP	213	MIRROR UPPER STAY R	ANG2005
NSP	214	MIRROR UPPER STAY C	ANG2006
NSP	215	PACKING SHEET	AHG1237
	216	REPEATER PACKING CASE (SD-P5185-K AND PRO-98 ONLY)	AHC1024
	217	MAIN REPEATER (SD-P5185-K AND PRO-98 ONLY)	AXF1079
	218	MAGIC TAPE A (SD-P5185-K AND PRO-98 ONLY)	AEC1630
	219	MAGIC TAPE B (SD-P5185-K AND PRO-98 ONLY)	AEC1631
	220	MINI REPEATER (SD-P5185-K AND PRO-98 ONLY)	ADF1002
	221	FRONT SHEET(PVC) (PRO-98 ONLY)	AEC1635
	222	FRAME CUSHION P (PRO-98 ONLY)	AEC1634

(1) FRONT VIEW [1]

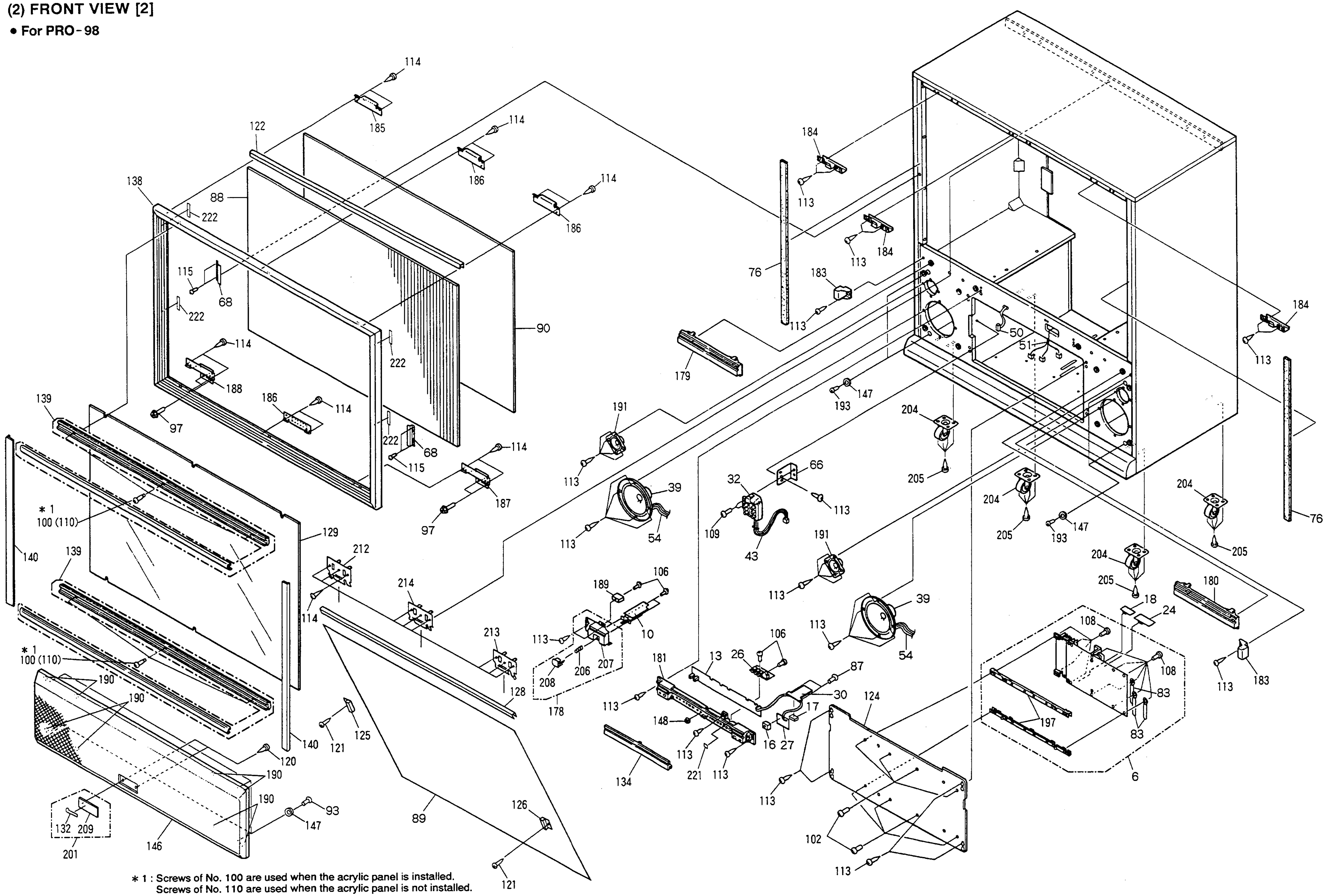
- **For SD-P5185-K and 83 family**


78
SD-P5185-K and
SD-P5183-K only
138
111
147
78
78
111
147
SD-P5185-K and
SD-P5183-K only
99
99
78
SD-P5185-K only
135
136
135
131
136
146
132
154
101
175
115
62
154
101
115
122
67
113
68
115
67
113
67
113
90
88
68
115
123
212
114
214
213
128
125
121
89
126
121
76
98
147
193
193
147
50
51
93
39
52
113
204
205
66
32
113
71
73
43
109
65
102
117
10
13
113
17
16
77
148
137
133
130
113
39
52
113
204
205
93
204
205
204
205
76
108
18
24
108
124
197
83
6
113
102
113

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.

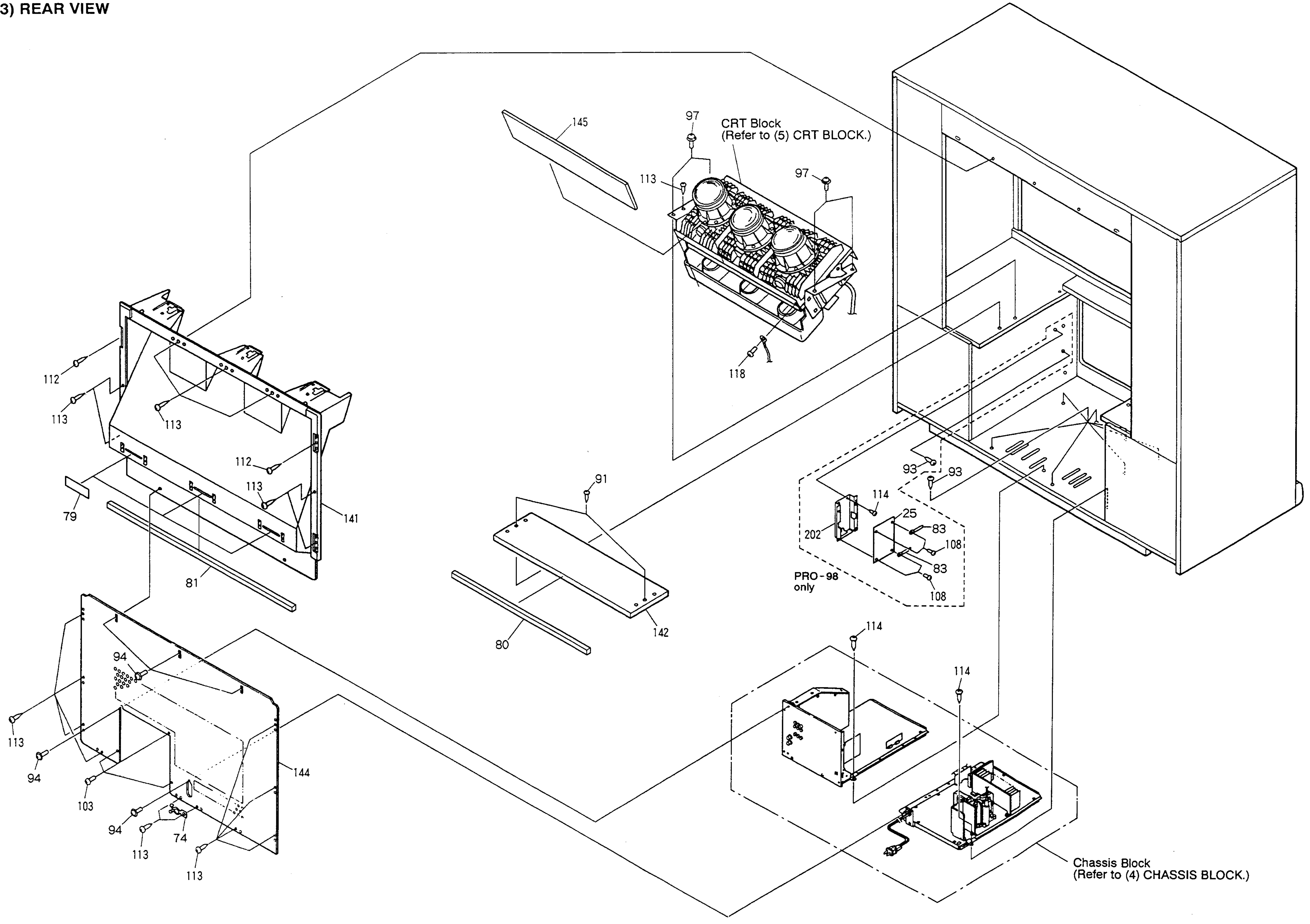
(2) FRONT VIEW [2]

- **For PRO-98**


114
185
122
114
186
138
222
88
114
186
184
113
184
113
183
76
113
115
68
222
90
179
114
222
188
139
186
114
97
222
68
115
114
187
97
191
113
39
54
113
32
66
113
109
43
50
51
147
193
204
205
204
205
147
193
204
205
184
113
76
* 1
100 (110)
129
139
140
212
114
214
189
106
10
113
206
207
208
178
191
113
39
54
113
204
205
18
24
180
183
113
108
108
83
83
197
6
* 1
100 (110)
190
190
213
128
181
13
26
106
87
30
17
16
27
124
148
113
113
221
113
134
113
102
113
140
121
125
120
190
190
93
147
132
209
201
146
89
126
121

∗ 1 : Screws of No. 100 are used when the acrylic panel is installed.
Screws of No. 110 are used when the acrylic panel is not installed.

(3) REAR VIEW

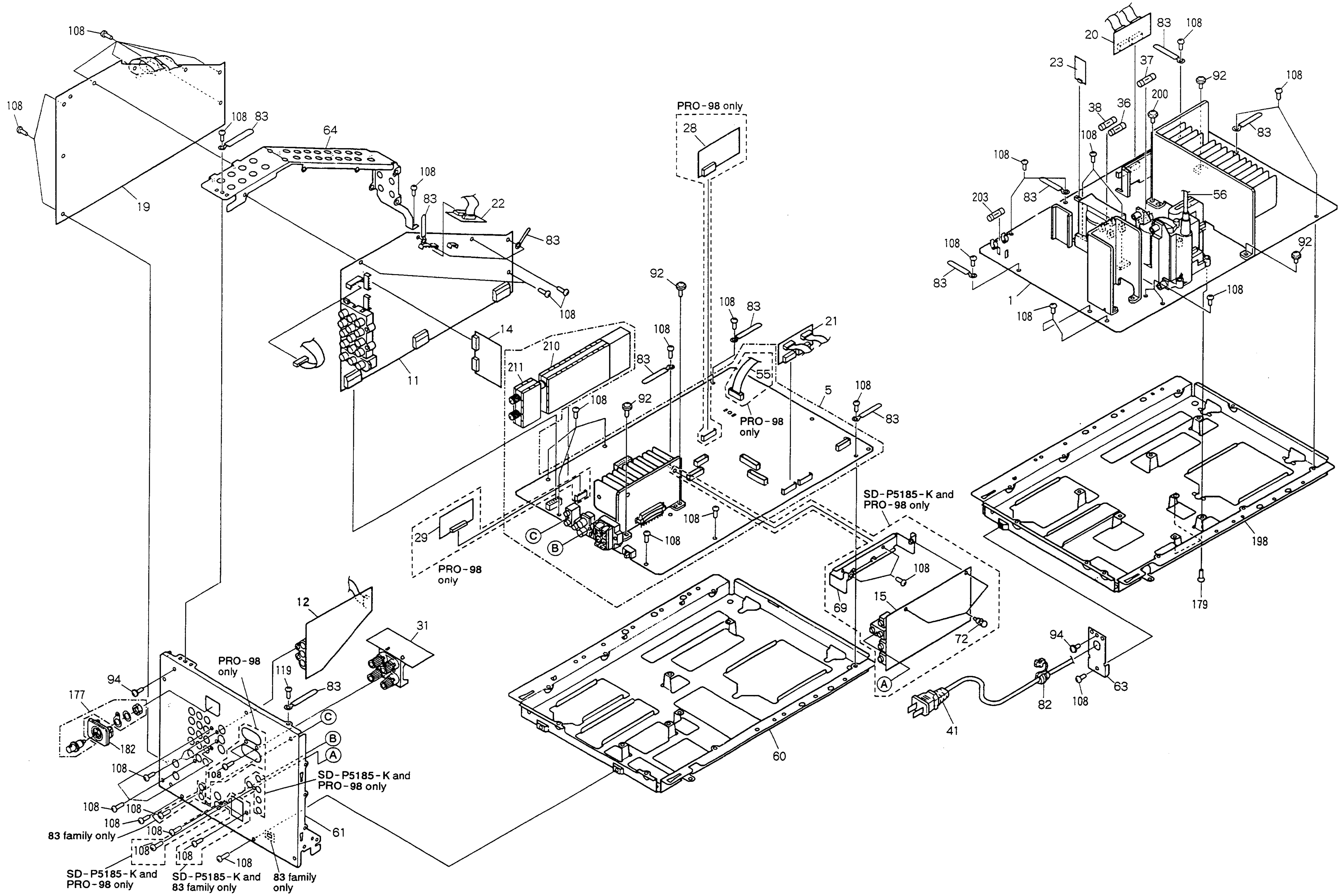

145
97
113
97
118
112
113
113
112
113
141
79
81
91
142
80
93
93
114
25
202
83
108
83
108
114
114
94
113
94
103
94
74
113
113
144

CRT Block
(Refer to (5) CRT BLOCK.)

PRO-98
only

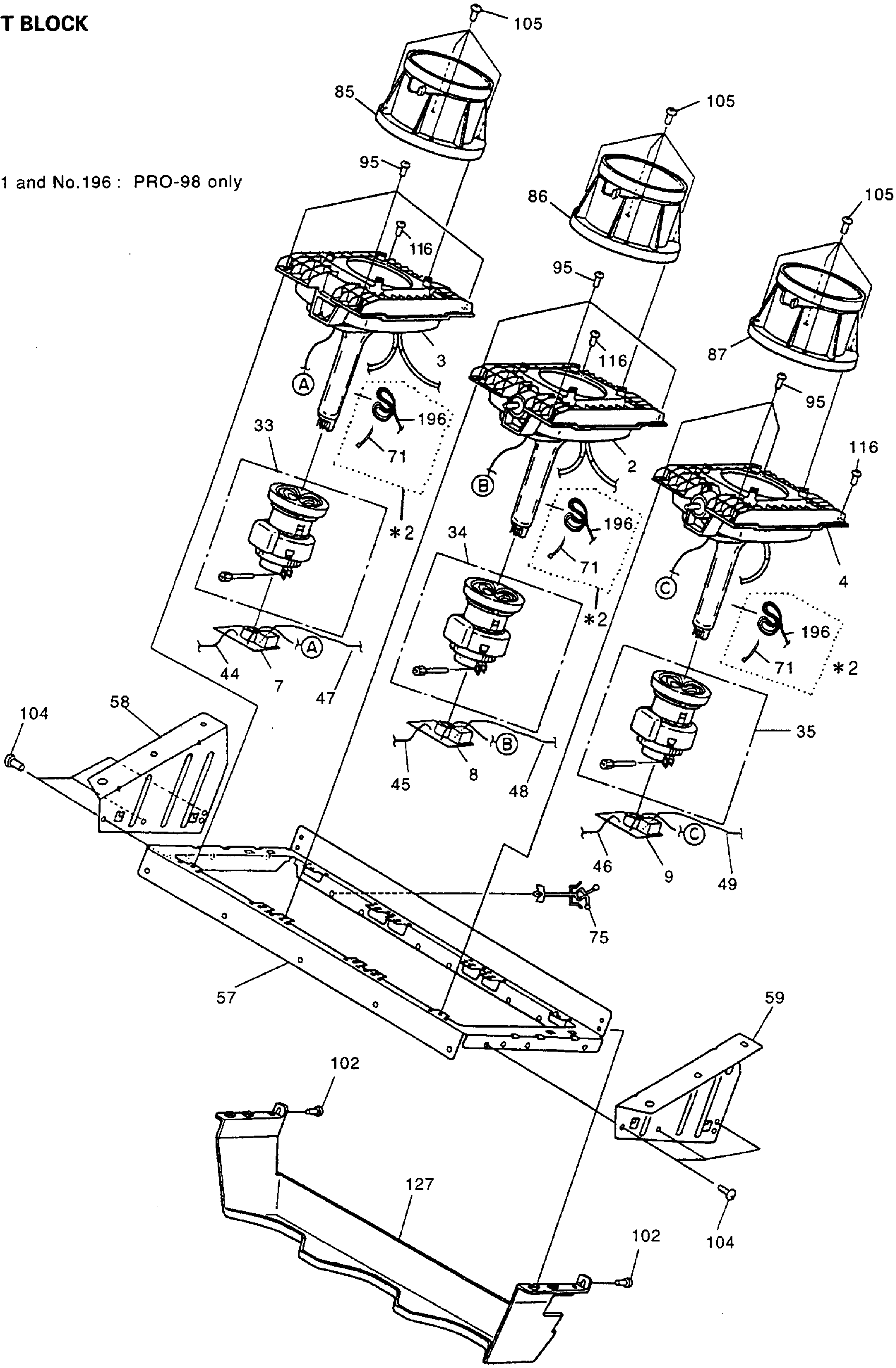
Chassis Block
(Refer to (4) CHASSIS BLOCK.)

(4) CHASSIS BLOCK

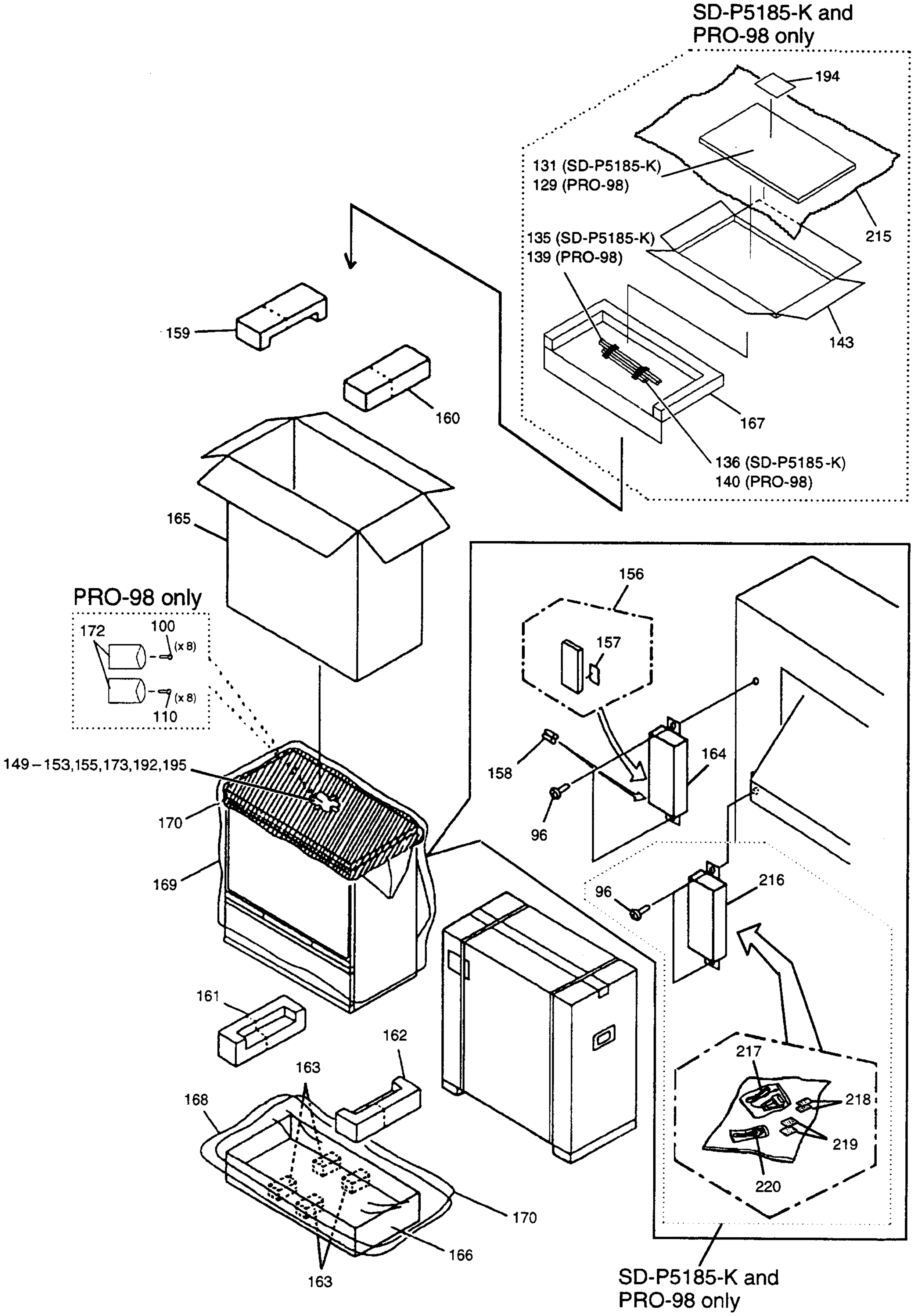

108
108
108
83
19
64
108
83
22
83
108
11
14
210
211
PRO-98 only
28
92
108
83
108
83
21
55
5
108
83
92
108
PRO-98 only
108
108
29
PRO-98 only
Ⓒ
Ⓑ
SD-P5185-K and PRO-98 only
108
69
15
72
Ⓐ
12
31
119
83
PRO-98 only
94
177
182
Ⓒ
Ⓑ
Ⓐ
108
108
108
108
108
83 family only
108
108
108
108
SD-P5185-K and PRO-98 only
SD-P5185-K and PRO-98 only
SD-P5185-K and 83 family only
83 family only
61
60
94
63
82
108
41
20
83
108
23
37
92
108
38
36
200
83
108
108
56
203
83
108
92
108
83
1
108
108
198
179

(5) CRT BLOCK

＊2:
No.71 and No.196 : PRO-98 only


105
85
105
95
86
105
116
95
3
87
A
116
196
95
71
33
2
116
B
＊2
34
196
4
71
C
＊2
196
44
7
A
71
47
＊2
104
58
35
45
8
B
48
46
9
C
49
75
57
59
102
127
102
104

A B C D


SD-P5185-K and
PRO-98 only
131 (SD-P5185-K)
129 (PRO-98)
135 (SD-P5185-K)
139 (PRO-98)
136 (SD-P5185-K)
140 (PRO-98)
PRO-98 only
(x 8)
(x 8)
149 – 153,155,173,192,195
SD-P5185-K and
PRO-98 only

5. REMOTE CONTROL UNIT

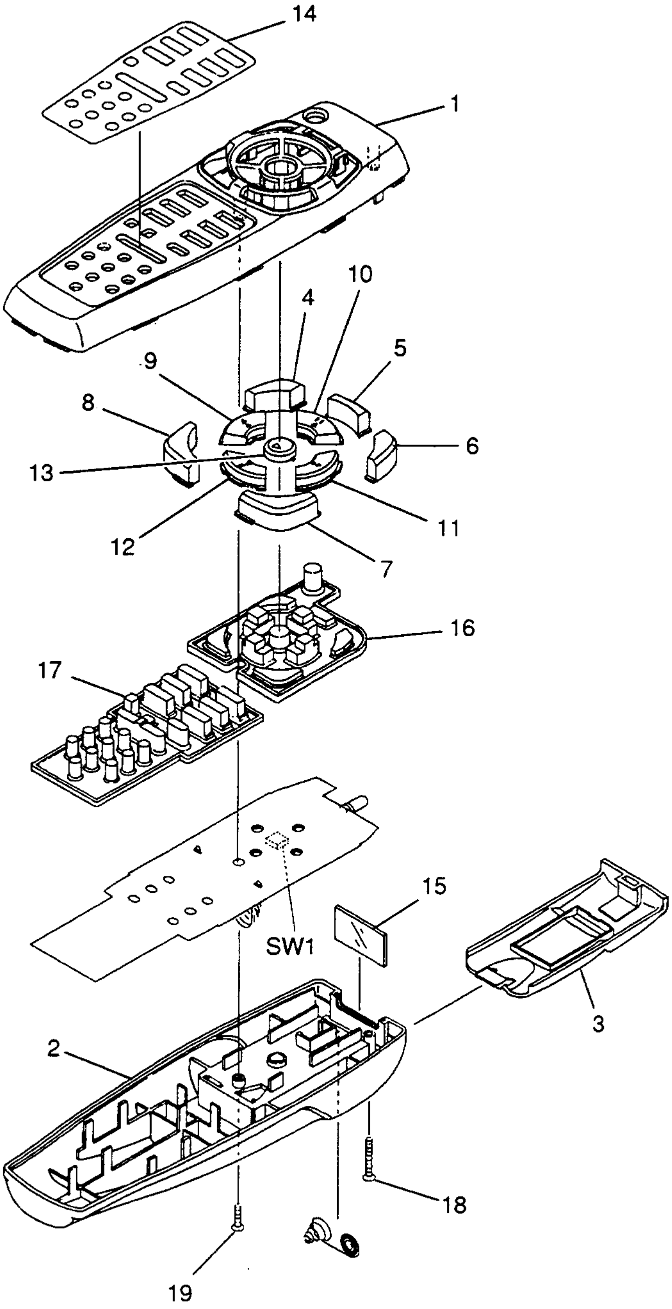
NOTES:

- ***Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.***
- ***The " ⚠ " mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.***
- ***Parts marked by " ◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.***

REMOTE CONTROL UNIT 〔AXD1415 (CU-SD092)〕
(For SD-P5185-K and PRO-98)

Exploded View and Parts List

Mark	No.	Description	Parts No.
	1	Case A	AZN2305
	2	Case B	AZN7189
	3	Battery cover	AZN7187
	4	Main key (POWER)	AZN7190
	5	Main key (MENU)	AZN2306
	6	Main key (CHECK)	AZN7192
	7	Main key (+)	AZN7193
	8	Main key (−)	AZN7194
	9	Main key (REW)	AZN7195
	10	Main key (PAUSE)	AZN2307
	11	Main key (FF)	AZN7197
	12	Main key (STOP)	AZN2308
	13	Main key (PLAY)	AZN2309
	14	Name plate	AZA2016
	15	Filter	AZA7101
	16	Rubber sheet A	AZA7102
	17	Rubber sheet B	AZA2017
	18	Screw	AZB7022
	19	Screw	AZB7023



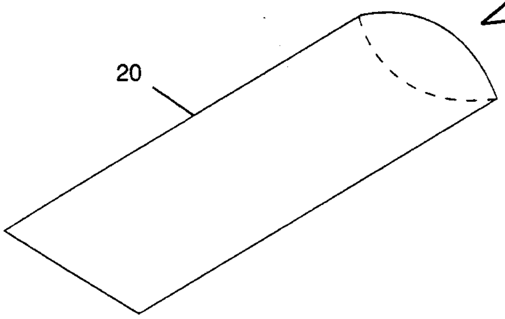
Parts List of Semiconductors and Switches

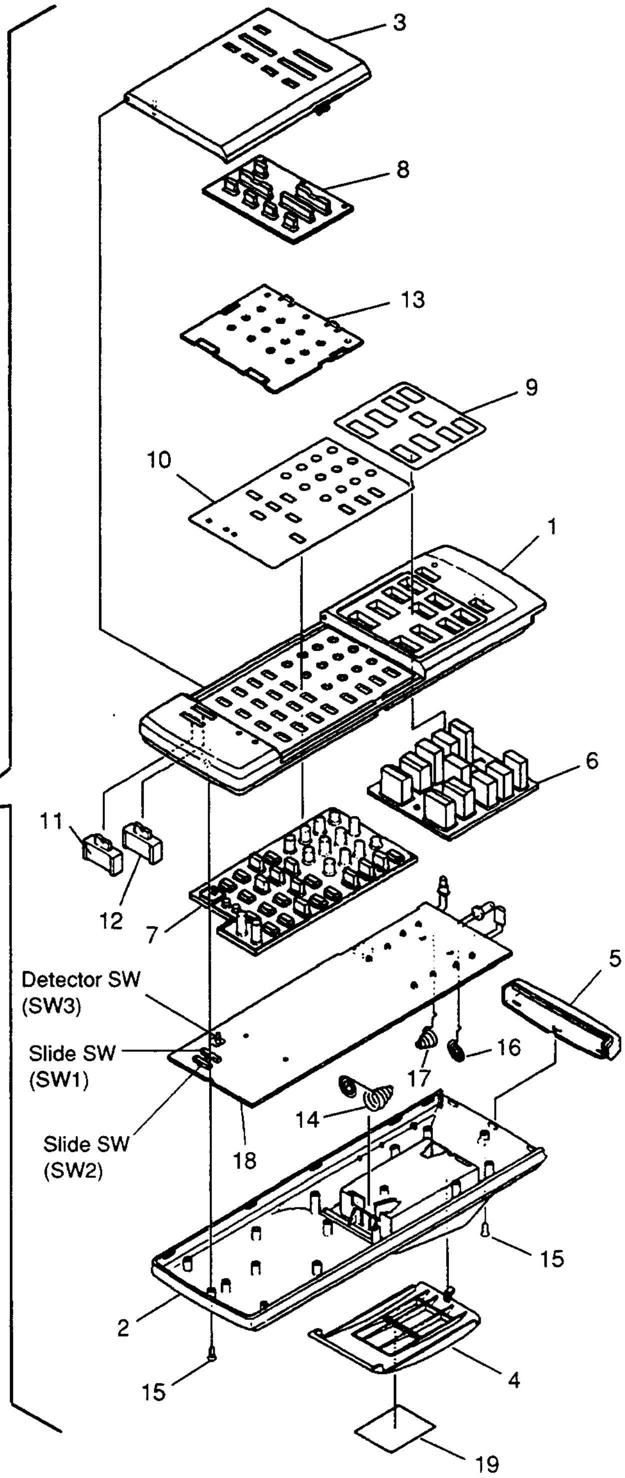
Mark	No.	Description	Parts No.
	IC1	UPD17215GT-544	AZC7073
	Q1		MSB709-RT2
	Q2		2SD1664
	D1		M1MA151WKT2
	D2	LED	DNP318U
	D3 - D12	LED	LBR2272S
	X1	Resonater	PBRC4.50AR
	SW1	SW	AZS1118

REMOTE CONTROL UNIT〔 AXD1416 (CU-SD091)〕
(For SD-P5183-K and SD-P4683-K)

Exploded View and Parts List

Mark	No.	Description	Parts No.
	1	Case A	AZA2008
	2	Case B	AZA1431
	3	Door	AZA2009
	4	Battery cover	AZA1505
	5	Filter	AZA1387
	6	Rubber sheet A	AZA2010
	7	Rubber sheet B	AZA2011
	8	Rubber sheet C	AZA2012
	9	Name plate A	AZA2013
	10	Name plate B	AZA2014
	11	Knob A	AZA1393
	12	Knob B	AZA1394
	13	Spacer	AZA1396
	14	Spring	AZB1268
	15	Screw	AZB1368
	16	Spring (+)	AZB1366
	17	Spring (−)	AZB1367
NSP	18	P.W.B	AZN2188
	19	Remote unit label	AZA2007
	20	Vinyl bag	AZE1091



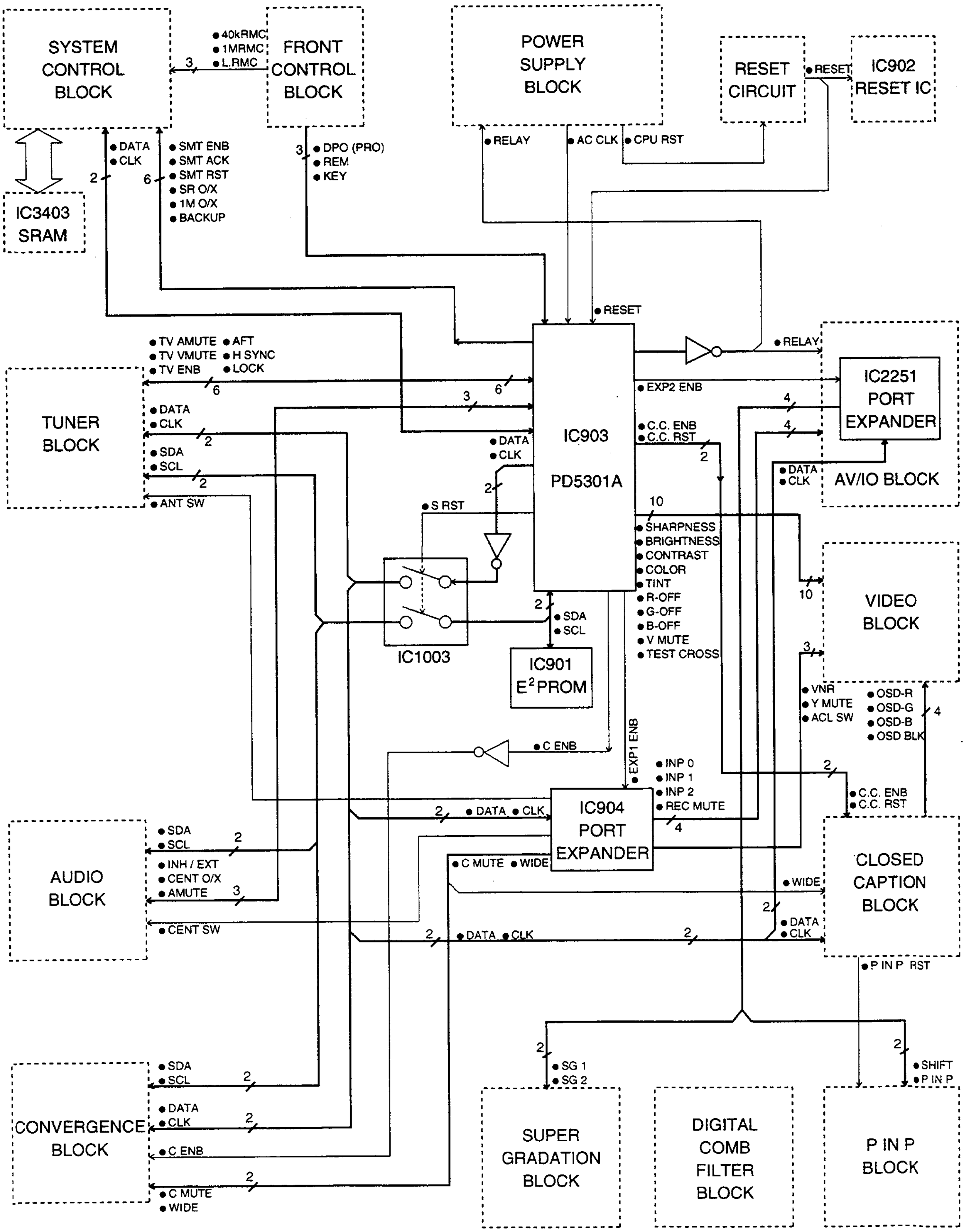


Parts List of Semiconductors and Switches

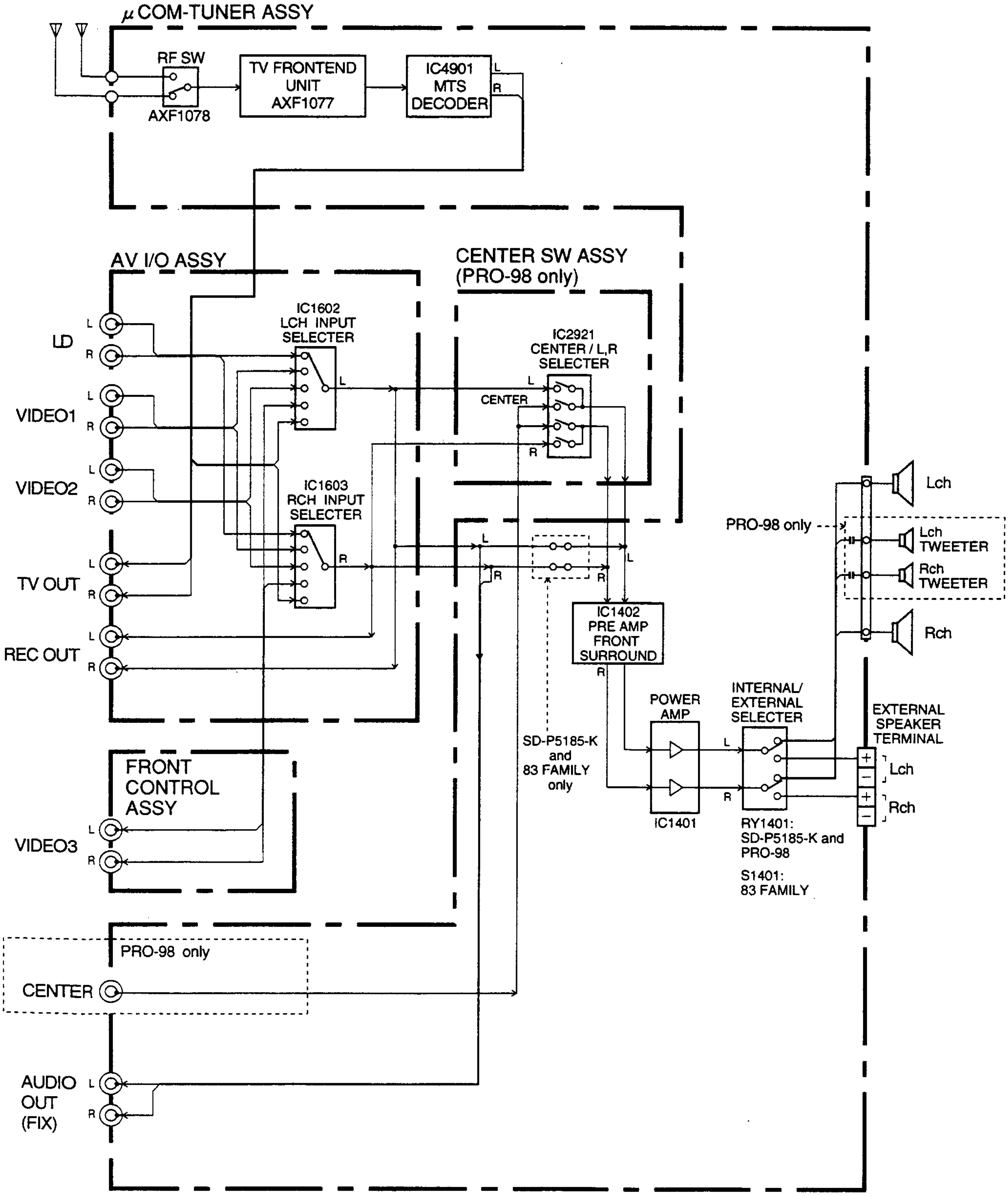
Mark	No.	Description	Parts No.
	IC1	UPD17204GC-544-3BH	AZQ1054
	Q1, Q2		2SD1664
	Q3	Voltage detector	AZC1582
	D1	LED	SE303A-C
	D2	Photo-diode	SPS-503C-3
	D3	LED	AZC1224
	D4 - D6		RLS73
	Z1	Resonater (4MHz)	AZC1846
	SW1	Slide SW	AZS1074
	SW2	Slide SW	AZS1073
	SW3	Detector SW	AZS1123

6. BLOCK DIAGRAM

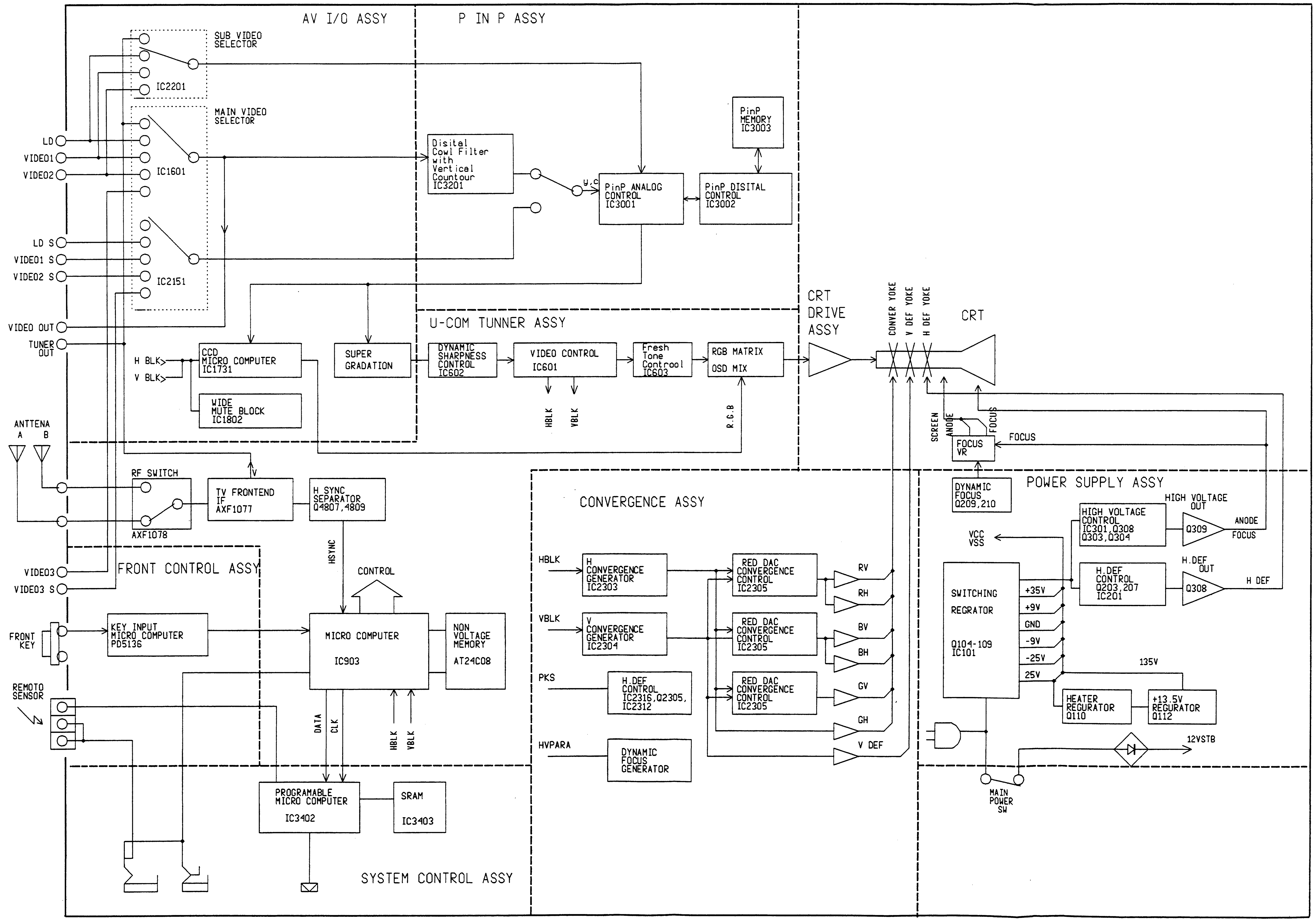
6.1 U-COM BLOCK


SYSTEM CONTROL BLOCK
FRONT CONTROL BLOCK
40kRMC
1MRMC
L.RMC
POWER SUPPLY BLOCK
RESET CIRCUIT
RESET
IC902 RESET IC
IC3403 SRAM
DATA
CLK
SMT ENB
SMT ACK
SMT RST
SR O/X
1M O/X
BACKUP
DPO (PRO)
REM
KEY
RELAY
AC CLK
CPU RST
RESET
TV AMUTE
TV VMUTE
TV ENB
AFT
H SYNC
LOCK
TUNER BLOCK
DATA
CLK
SDA
SCL
ANT SW
IC903
PD5301A
EXP2 ENB
C.C. ENB
C.C. RST
RELAY
IC2251 PORT EXPANDER
AV/IO BLOCK
DATA
CLK
S RST
SHARPNESS
BRIGHTNESS
CONTRAST
COLOR
TINT
R-OFF
G-OFF
B-OFF
V MUTE
TEST CROSS
VIDEO BLOCK
IC1003
IC901 E²PROM
SDA
SCL
VNR
Y MUTE
ACL SW
OSD-R
OSD-G
OSD-B
OSD BLK
C ENB
EXP1 ENB
INP 0
INP 1
INP 2
REC MUTE
IC904 PORT EXPANDER
DATA
CLK
C.C. ENB
C.C. RST
AUDIO BLOCK
SDA
SCL
INH / EXT
CENT O/X
AMUTE
CENT SW
C MUTE
WIDE
WIDE
CLOSED CAPTION BLOCK
DATA
CLK
P IN P RST
SG 1
SG 2
SHIFT
P IN P
CONVERGENCE BLOCK
SDA
SCL
DATA
CLK
C ENB
C MUTE
WIDE
SUPER GRADATION BLOCK
DIGITAL COMB FILTER BLOCK
P IN P BLOCK
2
3
4
6
10

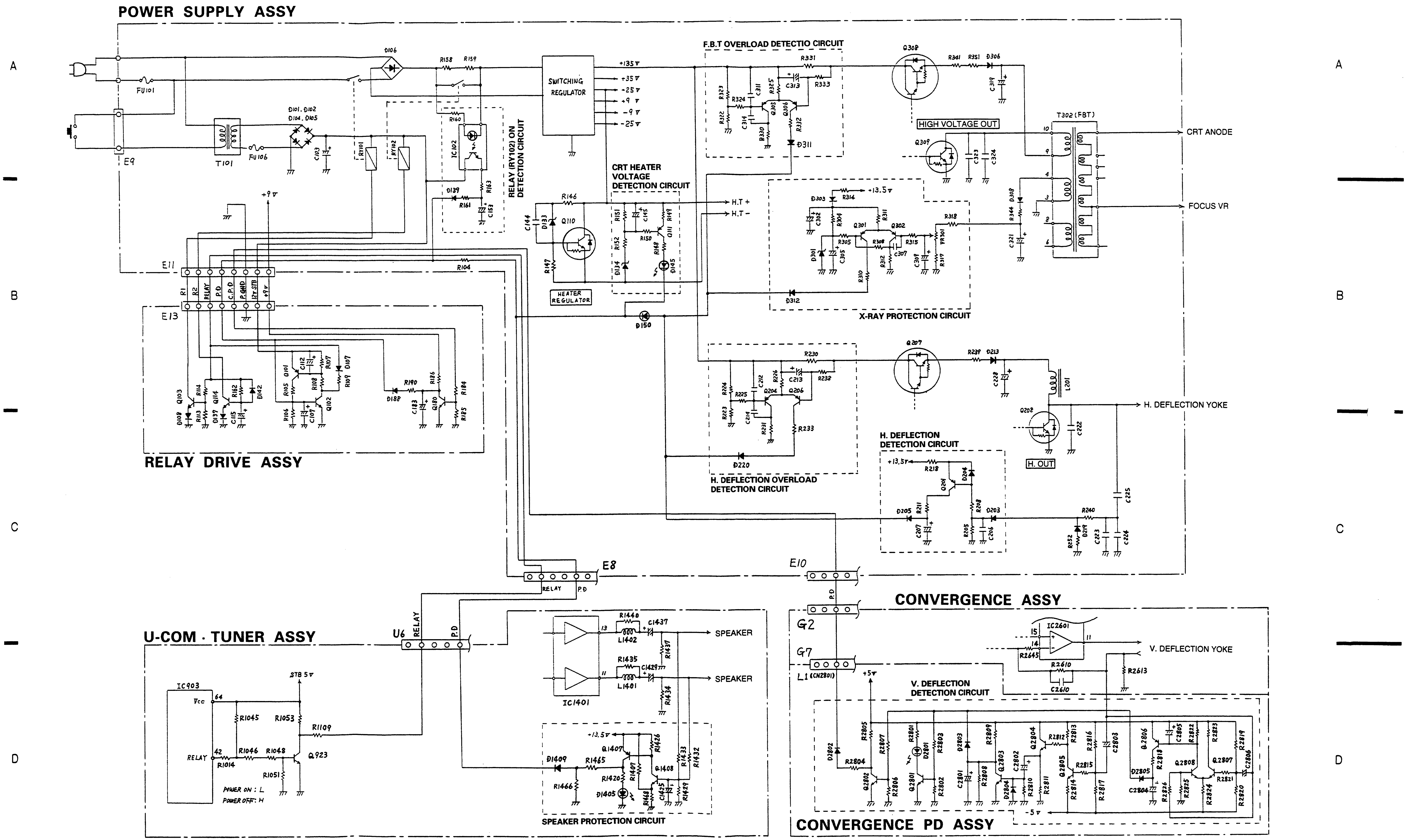
6.2 AUDIO BLOCK


μ COM-TUNER ASSY
RF SW
AXF1078
TV FRONTEND UNIT AXF1077
IC4901 MTS DECODER
L
R
AV I/O ASSY
CENTER SW ASSY (PRO-98 only)
IC1602 LCH INPUT SELECTER
IC1603 RCH INPUT SELECTER
IC2921 CENTER / L,R SELECTER
CENTER
LD
VIDEO1
VIDEO2
TV OUT
REC OUT
FRONT CONTROL ASSY
VIDEO3
PRO-98 only
CENTER
AUDIO OUT (FIX)
IC1402 PRE AMP FRONT SURROUND
SD-P5185-K and 83 FAMILY only
POWER AMP
IC1401
INTERNAL/ EXTERNAL SELECTER
RY1401: SD-P5185-K and PRO-98
S1401: 83 FAMILY
EXTERNAL SPEAKER TERMINAL
Lch
Rch
PRO-98 only
Lch TWEETER
Rch TWEETER
Lch
Rch

6.3 VIDEO BLOCK DIAGRAM

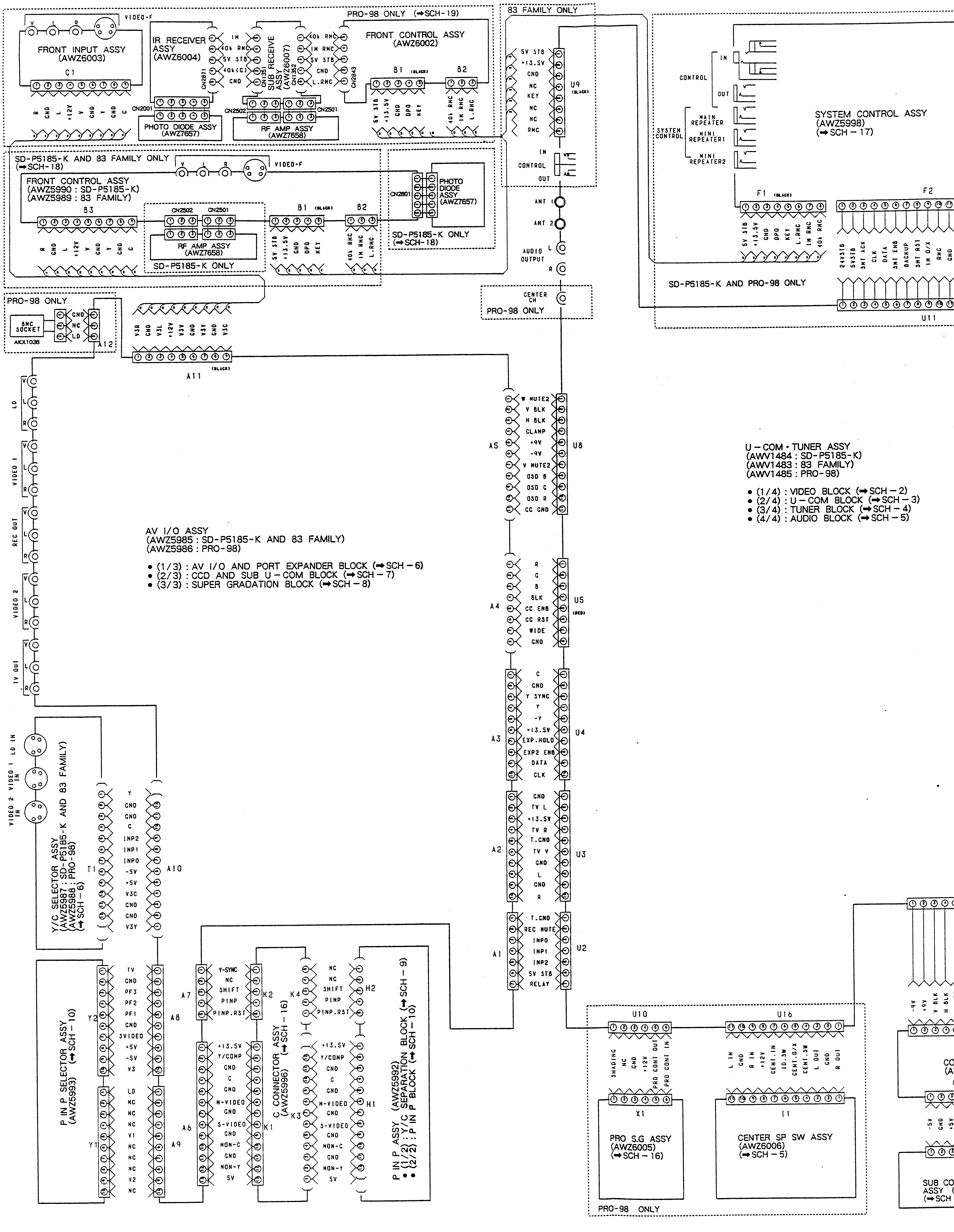

AV I/O ASSY
P IN P ASSY
SUB VIDEO SELECTOR
IC2201
MAIN VIDEO SELECTOR
IC1601
IC2151
LD
VIDEO1
VIDEO2
LD S
VIDEO1 S
VIDEO2 S
VIDEO OUT
TUNER OUT
Disital Cowl Filter with Vertical Countour IC3201
Y.C
PinP ANALOG CONTROL IC3001
PinP DISITAL CONTROL IC3002
PinP MEMORY IC3003
H BLK
V BLK
CCD MICRO COMPUTER IC1731
WIDE MUTE BLOCK IC1802
SUPER GRADATION
U-COM TUNNER ASSY
DYNAMIC SHARPNESS CONTROL IC602
VIDEO CONTROL IC601
HBLK
VBLK
Fresh Tone Controol IC603
RGB MATRIX OSD MIX
R.G.B
CRT DRIVE ASSY
CONVER YOKE
V DEF YOKE
H DEF YOKE
CRT
SCREEN
ANODE
FOCUS
FOCUS VR
FOCUS
ANTTENA
A
B
RF SWITCH
AXF1078
V
TV FRONTEND IF AXF1077
H SYNC SEPARATOR Q4807,4809
HSYNC
CONTROL
VIDEO3
VIDEO3 S
FRONT CONTROL ASSY
FRONT KEY
KEY INPUT MICRO COMPUTER PD5136
MICRO COMPUTER IC903
NON VOLTAGE MEMORY AT24C08
REMOTO SENSOR
DATA
CLK
HBLK
VBLK
PROGRAMABLE MICRO COMPUTER IC3402
SRAM IC3403
SYSTEM CONTROL ASSY
CONVERGENCE ASSY
HBLK
H CONVERGENCE GENERATOR IC2303
VBLK
V CONVERGENCE GENERATOR IC2304
PKS
H.DEF CONTROL IC2316,Q2305, IC2312
HVPARA
DYNAMIC FOCUS GENERATOR
RED DAC CONVERGENCE CONTROL IC2305
RED DAC CONVERGENCE CONTROL IC2305
RED DAC CONVERGENCE CONTROL IC2305
RV
RH
BV
BH
GV
GH
V DEF
DYNAMIC FOCUS Q209,210
POWER SUPPLY ASSY
HIGH VOLTAGE OUT
HIGH VOLTAGE CONTROL IC301,Q308 Q303,Q304
Q309
ANODE
FOCUS
VCC VSS
H.DEF OUT
H.DEF CONTROL Q203,207 IC201
Q308
H DEF
SWITCHING REGRATOR
Q104-109 IC101
+35V
+9V
GND
-9V
-25V
25V
135V
HEATER REGURATOR Q110
+13.5V REGURATOR Q112
12VSTB
MAIN POWER SW

6.4 PROTECTION BLOCK DIAGRAM

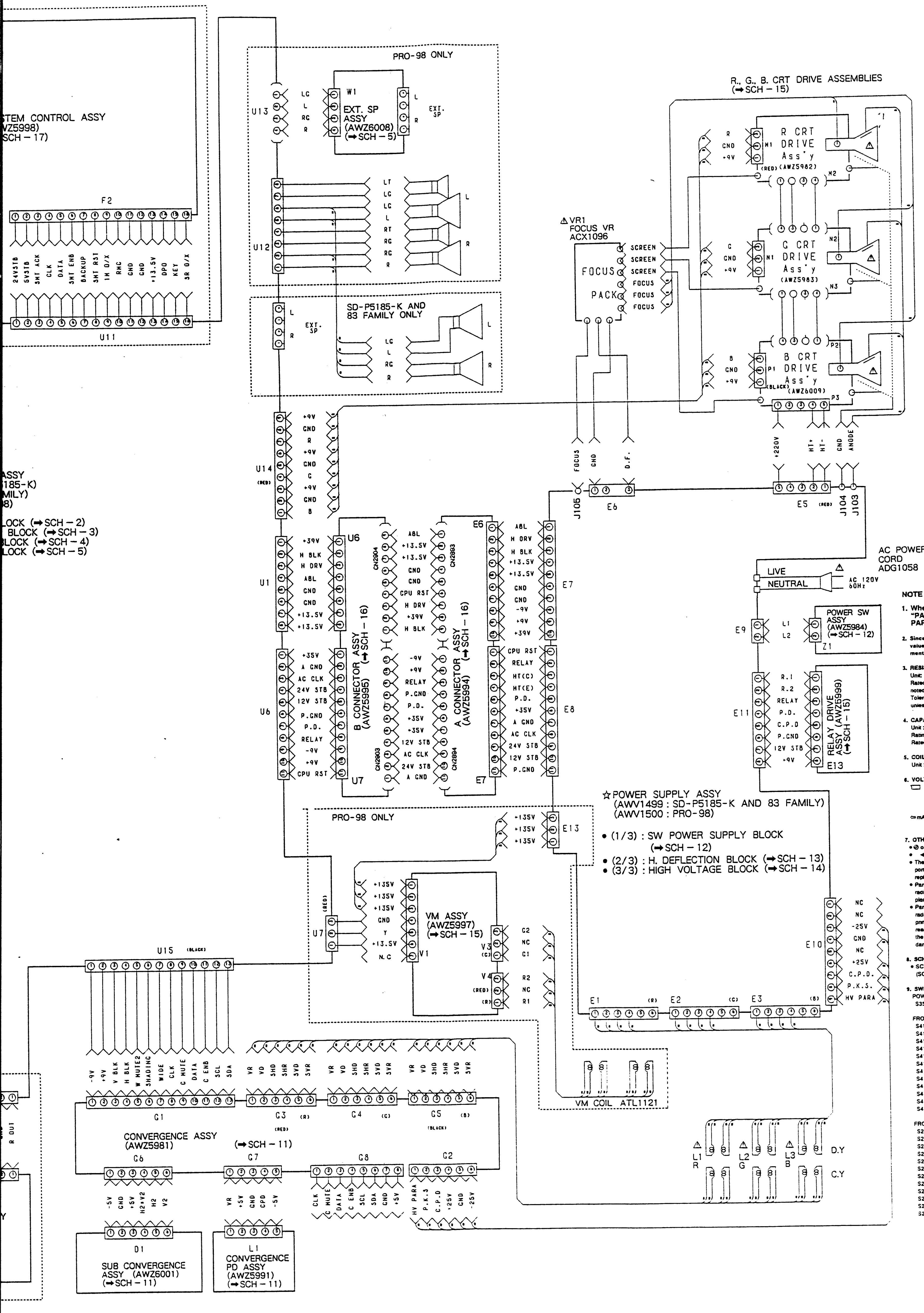

POWER SUPPLY ASSY
F.B.T OVERLOAD DETECTIO CIRCUIT
SWITCHING REGULATOR
+135V
+35V
+25V
+9V
-9V
-25V
RELAY (RY102) ON DETECTION CIRCUIT
CRT HEATER VOLTAGE DETECTION CIRCUIT
H.T +
H.T -
HEATER REGULATOR
HIGH VOLTAGE OUT
T302 (FBT)
CRT ANODE
FOCUS VR
X-RAY PROTECTION CIRCUIT
H. DEFLECTION YOKE
H. OUT
H. DEFLECTION DETECTION CIRCUIT
H. DEFLECTION OVERLOAD DETECTION CIRCUIT
E9
E11
E13
R1
R2
RELAY
P.D
C.P.D
P.GND
12V STB
+9V
RELAY DRIVE ASSY
E8
E10
U-COM · TUNER ASSY
U6
IC903
Vcc
RELAY
STB 5V
Q923
POWER ON : L
POWER OFF : H
IC1401
SPEAKER
SPEAKER
SPEAKER PROTECTION CIRCUIT
CONVERGENCE ASSY
G2
G7
L1 (CN2801)
IC2601
V. DEFLECTION YOKE
V. DEFLECTION DETECTION CIRCUIT
CONVERGENCE PD ASSY

7. SCHEMATIC AND PCB CONNECTION DIAGRAMS

7.1 OVERALL WIRING DIAGRAM


FRONT INPUT ASSY
(AWZ6003)
C1
VIDEO-F
IR RECEIVER
ASSY
(AWZ6004)
CN2871
SUB RECEIVE
ASSY
(AWZ6007)
CN1351
CN1352
CN2843
PRO-98 ONLY (➡SCH-19)
FRONT CONTROL ASSY
(AWZ6002)
B1
B2
CN2001
PHOTO DIODE ASSY
(AWZ7657)
CN2502
CN2501
RF AMP ASSY
(AWZ7658)
83 FAMILY ONLY
U9
SD-P5185-K AND 83 FAMILY ONLY
(➡SCH-18)
FRONT CONTROL ASSY
(AWZ5990 : SD-P5185-K)
(AWZ5989 : 83 FAMILY)
B3
RF AMP ASSY
(AWZ7658)
SD-P5185-K ONLY
CN2801
PHOTO
DIODE
ASSY
(AWZ7657)
SD-P5185-K ONLY
(➡SCH-18)
ANT 1
ANT 2
AUDIO
OUTPUT
CENTER
CH
PRO-98 ONLY
CONTROL
SYSTEM
CONTROL
MAIN
REPEATER
MINI
REPEATER1
MINI
REPEATER2
SYSTEM CONTROL ASSY
(AWZ5998)
(➡SCH – 17)
F1
F2
SD-P5185-K AND PRO-98 ONLY
U11
PRO-98 ONLY
BNC
SOCKET
AKX1036
A12
A11
LD
VIDEO 1
REC OUT
VIDEO 2
TV OUT
A5
U8
A4
U5
A3
U4
A2
U3
A1
U2
AV I/O ASSY
(AWZ5985 : SD-P5185-K AND 83 FAMILY)
(AWZ5986 : PRO-98)
• (1/3) : AV I/O AND PORT EXPANDER BLOCK (➡SCH – 6)
• (2/3) : CCD AND SUB U – COM BLOCK (➡SCH – 7)
• (3/3) : SUPER GRADATION BLOCK (➡SCH – 8)
U – COM • TUNER ASSY
(AWV1484 : SD-P5185-K)
(AWV1483 : 83 FAMILY)
(AWV1485 : PRO-98)
• (1/4) : VIDEO BLOCK (➡SCH – 2)
• (2/4) : U – COM BLOCK (➡SCH – 3)
• (3/4) : TUNER BLOCK (➡SCH – 4)
• (4/4) : AUDIO BLOCK (➡SCH – 5)
VIDEO 2 IN
VIDEO 1 IN
LD IN
Y/C SELECTOR ASSY
(AWZ5987 : SD-P5185-K AND 83 FAMILY)
(AWZ5988 : PRO-98)
(➡SCH – 6)
T1
A10
P IN P SELECTOR ASSY
(AWZ5993) (➡SCH – 10)
Y2
Y1
A8
A9
A7
A6
K2
K1
K4
K3
H2
H1
C CONNECTOR ASSY
(AWZ5996) (➡SCH – 16)
P IN P ASSY (AWZ5992)
• (1/2) : Y/C SEPARATION BLOCK (➡SCH – 9)
• (2/2) : P IN P BLOCK (➡SCH – 10)
U10
U16
X1
I1
PRO S.G ASSY
(AWZ6005)
(➡SCH – 16)
CENTER SP SW ASSY
(AWZ6006)
(➡SCH – 5)
PRO-98 ONLY
SUB CO
ASSY
(➡SCH

SCH – 1


TEM CONTROL ASSY
Z5998)
SCH – 17)
F2
U11
24V STB
5V STB
SHT ACK
CLK
DATA
SHT ENB
BACKUP
SHT RST
1H O/X
RMC
GND
GND
+13.5V
DPO
KEY
SR O/X
PRO-98 ONLY
U13
W1
EXT. SP ASSY (AWZ6008) (→SCH – 5)
EXT. SP
LC
L
RC
R
U12
LT
LC
LC
L
RT
RC
RC
R
SD-P5185-K AND 83 FAMILY ONLY
ASSY
185-K)
MILY)
8)
LOCK (→SCH – 2)
BLOCK (→SCH – 3)
LOCK (→SCH – 4)
LOCK (→SCH – 5)
U14
(RED)
+9V
GND
R
+9V
GND
G
+9V
GND
B
U1
+39V
H BLK
H DRV
ABL
GND
GND
+13.5V
+13.5V
U6
+35V
A GND
AC CLK
24V STB
12V STB
P.GND
P.D.
RELAY
-9V
+9V
CPU RST
U7
B CONNECTOR ASSY (AWZ5995) (→SCH – 16)
A CONNECTOR ASSY (AWZ5994) (→SCH – 16)
CN2904
CN2903
CN2893
CN2894
E6
E7
E8
HT(C)
HT(E)
△VR1 FOCUS VR ACX1096
FOCUS PACK
SCREEN
FOCUS
R., G., B. CRT DRIVE ASSEMBLIES (→SCH – 15)
R CRT DRIVE Ass'y (AWZ5982)
G CRT DRIVE Ass'y (AWZ5983)
B CRT DRIVE Ass'y (AWZ6009)
M1
M2
N1
N2
N3
P1
P2
P3
(RED)
(BLACK)
+220V
HT+
HT-
GND
ANODE
J105
J104
J103
D.F.
E5
AC POWER CORD ADG1058
LIVE
NEUTRAL
AC 120V 60Hz
POWER SW ASSY (AWZ5984) (→SCH – 12)
Z1
L1
L2
E9
E11
R.1
R.2
RELAY
P.D.
C.P.D
P.GND
12V STB
+9V
RELAY DRIVE ASSY (AWZ5999) (→SCH – 15)
E13
☆POWER SUPPLY ASSY
(AWV1499 : SD-P5185-K AND 83 FAMILY)
(AWV1500 : PRO-98)
• (1/3) : SW POWER SUPPLY BLOCK (→SCH – 12)
• (2/3) : H. DEFLECTION BLOCK (→SCH – 13)
• (3/3) : HIGH VOLTAGE BLOCK (→SCH – 14)
PRO-98 ONLY
+135V
VM ASSY (AWZ5997) (→SCH – 15)
V1
V3
V4
Y
+13.5V
N.C
C2
NC
C1
R2
R1
E10
-25V
+25V
C.P.D.
P.K.S.
HV PARA
E1
E2
E3
VM COIL ATL1121
U15 (BLACK)
-9V
+9V
V BLK
H BLK
W MUTE2
SHADING
WIDE
CLK
C MUTE
DATA
C ENB
SCL
SDA
VR
VD
SHD
SHR
SVD
SVR
G1
G3
G4
G5
CONVERGENCE ASSY (AWZ5981)
(→SCH – 11)
G6
G7
G8
G2
-5V
+5V
H2+V2
H2
V2
CPD
P.K.3
D1
SUB CONVERGENCE ASSY (AWZ6001) (→SCH – 11)
L1
CONVERGENCE PD ASSY (AWZ5991) (→SCH – 11)
△ L1 R
△ L2 G
△ L3 B
D.Y
C.Y
R OUT

NOTE FOR SCHEMATIC DIAGRAMS

(Type 5A)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
3. RESISTORS:
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance:(F):±1%, (G):±2%, (K):±10%, (M):±20% or ±5% unless otherwise noted.
4. CAPACITORS:
   Unit : p:pF or uF unless otherwise noted.
   Ratings : capacitor (uF) / voltage (V) unless otherwise noted.
   Rated voltage : 50V except for electrolytic capacitors.
5. COILS:
   Unit : m:mH or uH unless otherwise noted.
6. VOLTAGE AND CURRENT:
   ☐ or ←V :
   DC voltage (V) at no input signal unless otherwise noted. Value in ( ) is DC voltage at color bar signal input state.
   ⇦mA or ←mA :
   DC current at no input signal unless otherwise noted.
7. OTHERS:
   - ⊘ or ⊘ : Adjusting point.
   - ◀ : Measurement point.
   - The △ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
   - Parts marked by ☆ are important parts which relate to X-rays radiation. If any of these parts needs to be replaced, always replace with specified parts.
   - Parts marked by × are important parts which relate to X-rays radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself. If any part marked by × is replaced, there is danger of being exposed to X-rays.
8. SCH – ☐ ON THE SCHEMATIC DIAGRAM:
   - SCH– ☐ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. SWITCHES (Underline indicates switch position):

POWER SW ASSY
S3591: MAIN POWER

FRONT CONTROL ASSY (SD-P5185-K AND 83 FAMILY)
S4101 : CHANNEL –
S4102 : INPUT SELECTOR
S4103 : POWER
S4104 : VOLUME +
S4105 : VOLUME –
S4106 : CHANNEL +
S4107 : FACTORY ADJ
S4108 : RETURN
S4109 : CINEMA WIDE
S4110 : P INP ON/OFF
S4111 : P IN P INPUT
S4112 : ANT

FRONT CONTROL ASSY (PRO-98)
S2841 : CHANNEL –
S2842 : INPUT SELECTOR
S2843 : POWER
S2844 : VOLUME +
S2845 : VOLUME –
S2846 : CHANNEL +
S2847 : FACTORY ADJ
S2848 : RETURN
S2849 : WIDE
S2850 : P INP ON/OFF
S2851 : P IN P INPUT
S2852 : ANTENNA SELECTOR

OVERALL WIRING DIAGRAM

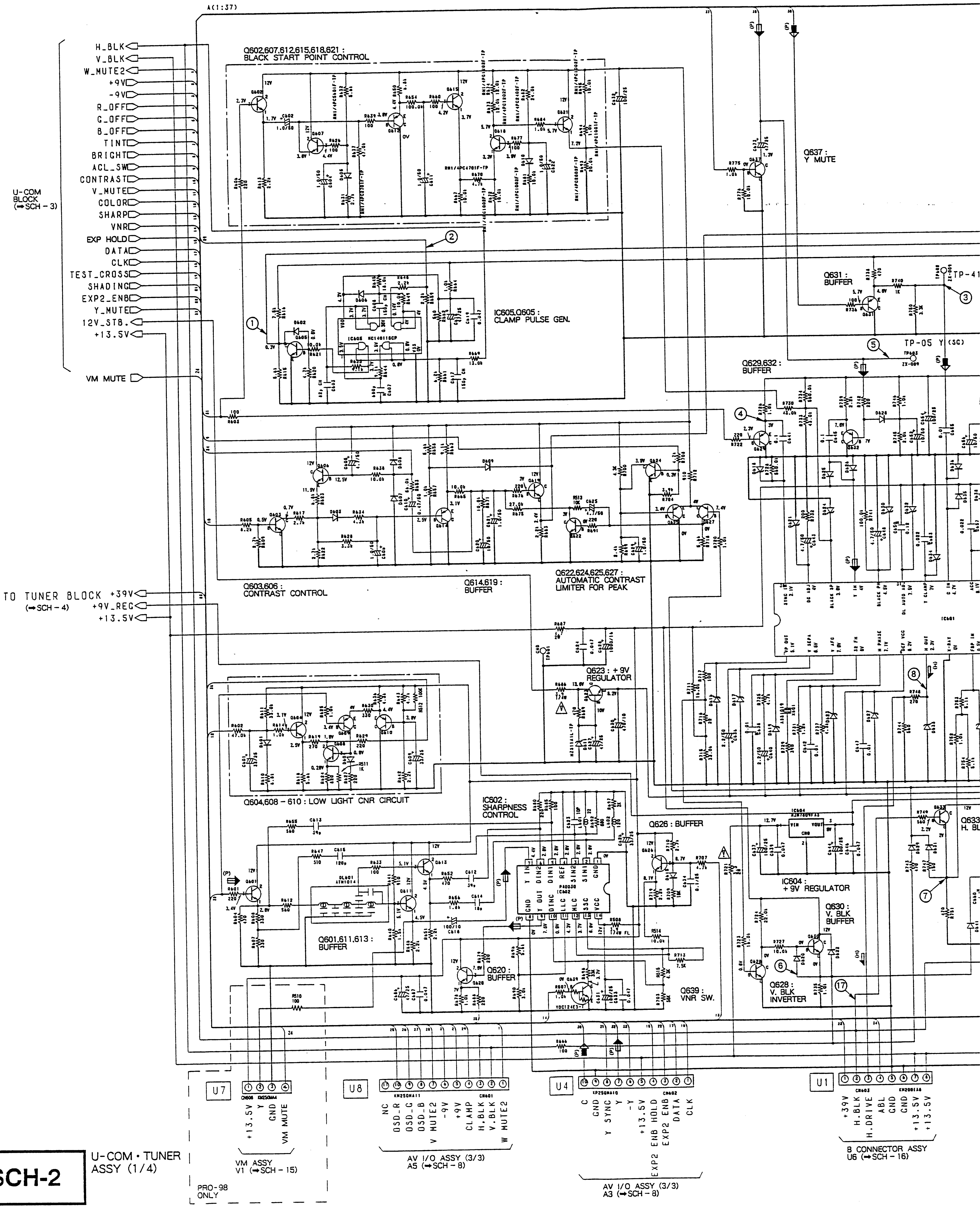
SCH-1

7.2 U-COM • TUNER ASSY (1/4)

Note : Relation between symbols and parts numbers are as follows unless otherwise noted.

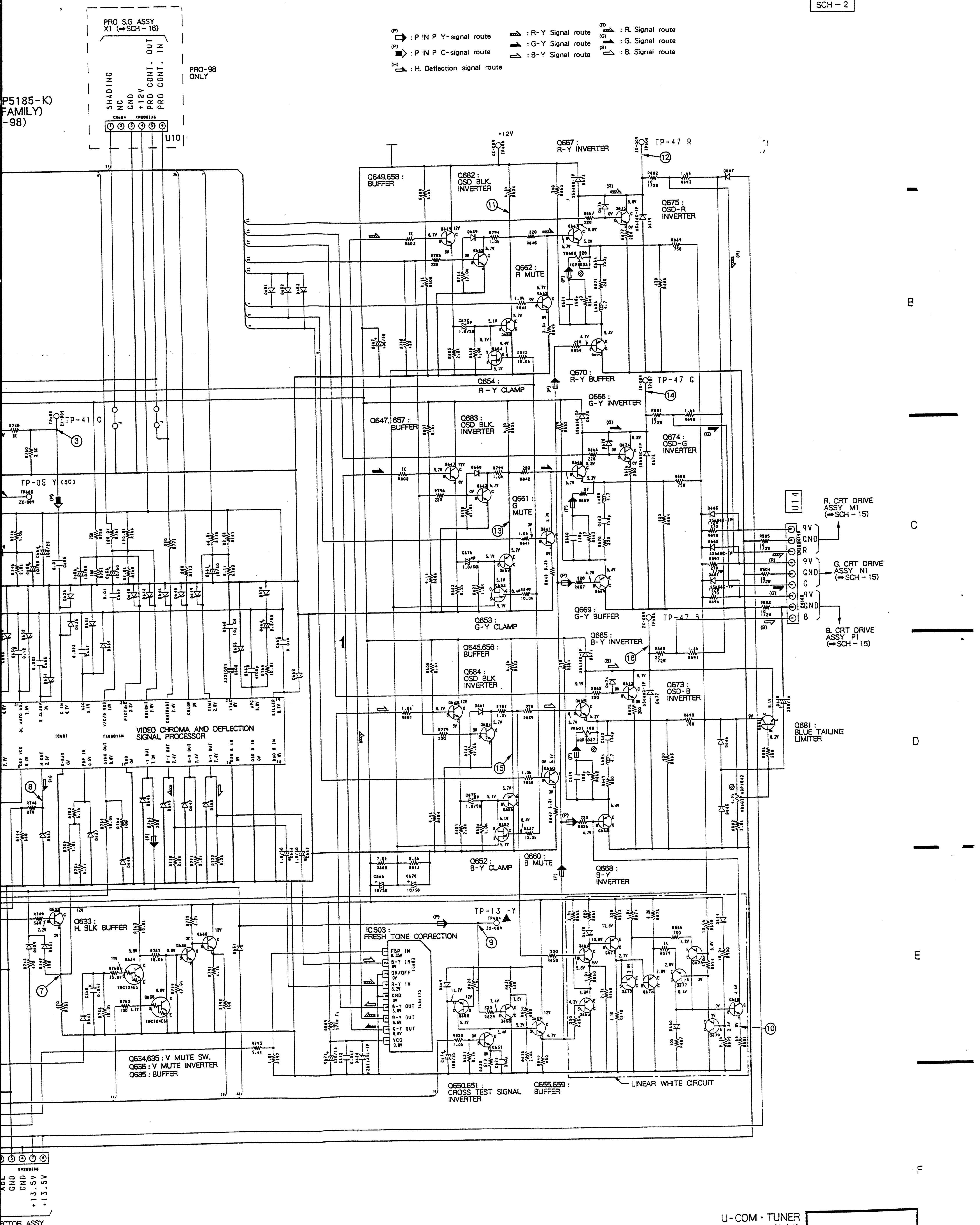
2SA933S	HSS-104-02
2SC1740S	MTZJ15
2SK246	

U-COM • TUNER ASSY (AWV1484 : SD-P5185-K)
● VIDEO BLOCK (AWV1483 : 83 FAMILY)
(AWV1485 : PRO-98)


U-COM BLOCK (→SCH-3)
H_BLK
V_BLK
W_MUTE2
+9V
-9V
R_OFF
G_OFF
B_OFF
TINT
BRIGHT
ACL_SW
CONTRAST
V_MUTE
COLOR
SHARP
VNR
EXP HOLD
DATA
CLK
TEST_CROSS
SHADING
EXP2_ENB
Y_MUTE
12V_STB.
+13.5V
VM MUTE
TO TUNER BLOCK +39V
(→SCH-4) +9V_REG
+13.5V
A(1:37)
Q602,607,612,615,618,621 : BLACK START POINT CONTROL
Q637 : Y MUTE
IC605,Q605 : CLAMP PULSE GEN.
IC605 HC14011BCP
Q631 : BUFFER
TP-41
TP-05 Y (SC)
Q629,632 : BUFFER
Q603,606 : CONTRAST CONTROL
Q614,619 : BUFFER
Q622,624,625,627 : AUTOMATIC CONTRAST LIMITER FOR PEAK
Q623 : +9V REGULATOR
IC601
Q604,608-610 : LOW LIGHT CNR CIRCUIT
IC602 : SHARPNESS CONTROL
Q626 : BUFFER
IC604 : +9V REGULATOR
Q630 : V. BLK BUFFER
Q633 H. BL
Q601,611,613 : BUFFER
Q620 : BUFFER
Q639 : VNR SW.
Q628 : V. BLK INVERTER
①
②
③
④
⑤
⑥
⑦
⑧
⑰
U7
+13.5V
Y
GND
VM MUTE
VM ASSY V1 (→SCH-15)
PRO-98 ONLY
U8
NC
OSD_R
OSD_G
OSD_B
V MUTE2
-9V
+9V
CLAMP
H.BLK
V.BLK
W MUTE2
AV I/O ASSY (3/3) A5 (→SCH-8)
U4
C
GND
Y SYNC
Y
-Y
+13.5V
EXP2 ENB HOLD
EXP2 ENB
DATA
CLK
AV I/O ASSY (3/3) A3 (→SCH-8)
U1
+39V
H.BLK
H.DRIVE
ABL
GND
GND
+13.5V
+13.5V
B CONNECTOR ASSY U6 (→SCH-16)

SCH-2

U-COM • TUNER ASSY (1/4)


PRO S.G ASSY
X1 (➡SCH – 16)
SHADING
NC
GND
+12V
PRO CONT. OUT
PRO CONT. IN
U10
PRO-98
ONLY
P5185-K)
FAMILY)
-98)
(P) : P IN P Y-signal route
(P) : P IN P C-signal route
(H) : H. Deflection signal route
: R-Y Signal route
: G-Y Signal route
: B-Y Signal route
(R) : R. Signal route
(G) : G. Signal route
(B) : B. Signal route
Q667 :
R-Y INVERTER
TP-47 R
Q649,658 :
BUFFER
Q682 :
OSD BLK.
INVERTER
Q675 :
OSD-R
INVERTER
Q662 :
R MUTE
Q654 :
R-Y CLAMP
Q670 :
R-Y BUFFER
TP-47 G
Q666 :
G-Y INVERTER
TP-41 C
Q647,657 :
BUFFER
Q683 :
OSD BLK.
INVERTER
Q674 :
OSD-G
INVERTER
TP-05 Y (SC)
Q661 :
G
MUTE
U14
R. CRT DRIVE
ASSY M1
(➡SCH – 15)
G. CRT DRIVE
ASSY N1
(➡SCH – 15)
B. CRT DRIVE
ASSY P1
(➡SCH – 15)
9V
GND
R
9V
GND
G
9V
GND
B
Q653 :
G-Y CLAMP
Q669 :
G-Y BUFFER
TP-47 B
Q645,656 :
BUFFER
Q665 :
B-Y INVERTER
Q684 :
OSD BLK
INVERTER
Q673 :
OSD-B
INVERTER
VIDEO CHROMA AND DEFLECTION
SIGNAL PROCESSOR
IC601
TA8801AN
Q681 :
BLUE TAILING
LIMITER
Q652 :
B-Y CLAMP
Q660 :
B MUTE
Q668 :
B-Y
INVERTER
TP-13 -Y
Q633 :
H. BLK BUFFER
IC603 :
FRESH TONE CORRECTION
FBP IN
B-Y IN
ON/OFF
R-Y IN
GND
B-Y OUT
R-Y OUT
C-Y OUT
VCC
TA8647
Q634,635 : V MUTE SW.
Q636 : V MUTE INVERTER
Q685 : BUFFER
Q650,651 :
CROSS TEST SIGNAL
INVERTER
Q655,659 :
BUFFER
LINEAR WHITE CIRCUIT
ABL
GND
GND
+13.5V
+13.5V
ECTOR ASSY
H – 16)
+12V
DEF VCC
H OUT
X-RAY
FBP IN
SYNC OUT
GND
-Y OUT
R-Y OUT
G-Y OUT
B-Y OUT
OSD R IN
OSD G IN
OSD B IN
DL AUTO ADJ
Y CLAMP
C IN
ACC
V/C/D VCC
PICTURE
BRIGHT
CONTRAST
COLOR
TINT
XTAL
APC
KILLER

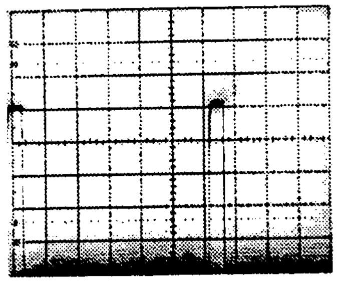
U-COM · TUNER
ASSY (1/4)

SCH-2

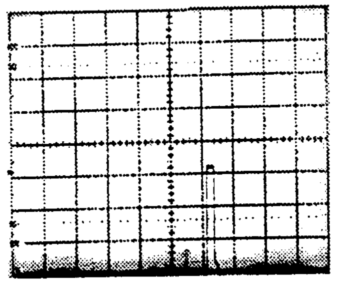
• Waveformes at U-COM•TUNER ASSY (VIDEO BLOCK)

- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

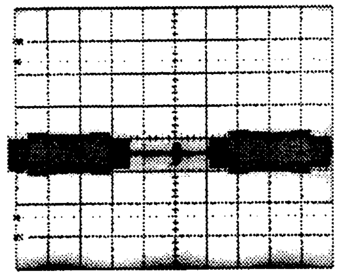
① **Q605 Collector**
V range : 1V/div.
H range : 10 μsec/div.



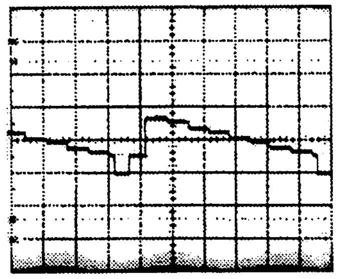
② **U8 pin 4 (CLAMP)**
V range : 0.5V/div.
H range : 10 μsec/div.



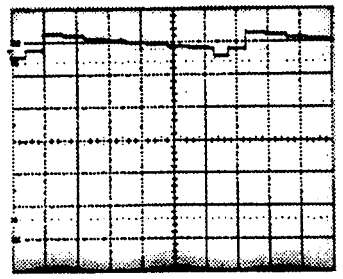
③ **TP-41 (C)**
V range : 0.2V/div.
H range : 10 μsec/div.



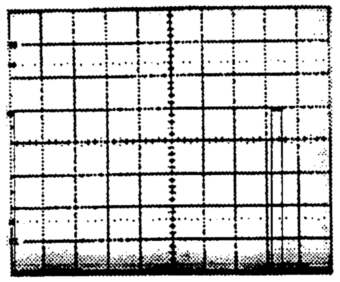
④ **Q629 Emitter**
V range : 1V/div.
H range : 10 μsec/div.



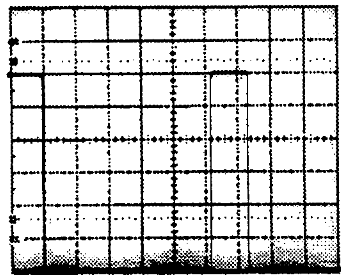
⑤ **TP-05 (Y)**
V range : 1V/div.
H range : 10 μsec/div.



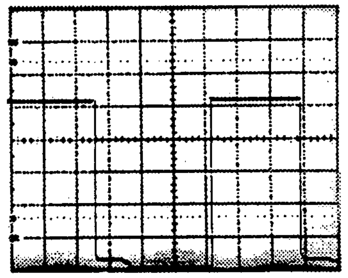
⑥ **Q630 Emitter**
V range : 2V/div.
H range : 2msec/div.



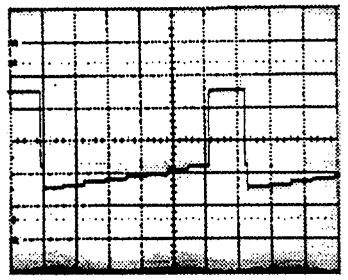
⑦ **Q633 Emitter**
V range : 2V/div.
H range : 10 μsec/div.



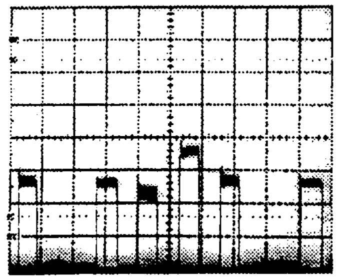
⑧ **IC601 pin 7**
V range : 1V/div.
H range : 10 μsec/div.



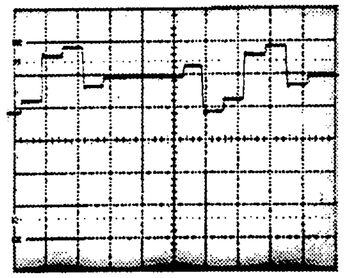
⑨ **TP-13 (-Y)**
V range : 2V/div.
H range : 10 μsec/div.



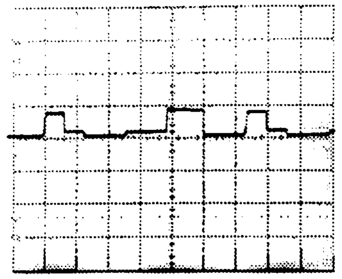
⑩ **Q680 Emitter**
V range : 50mV/div.
H range : 10 μsec/div.



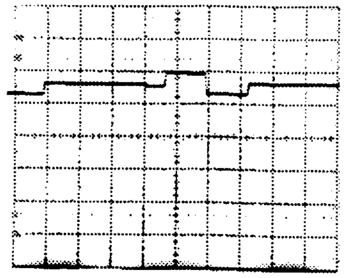
⑪ **Q658 Emitter**
V range : 1V/div.
H range : 10 μsec/div.



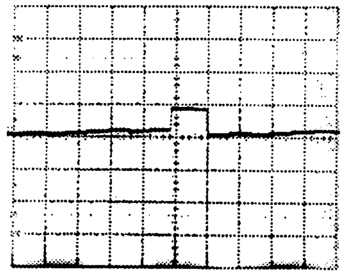
⑫ **TP-47 R**
V range : 2V/div.
H range : 10 μsec/div.



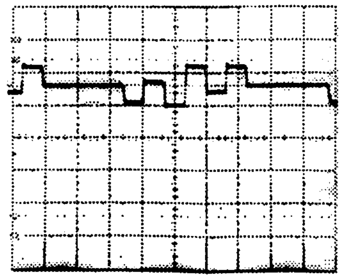
⑬ **Q657 Emitter**
V range : 1V/div.
H range : 10 μsec/div.



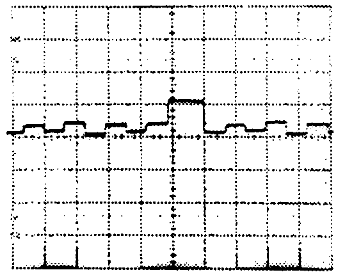
⑭ **TP-47 G**
V range : 2V/div.
H range : 10 μsec/div.



⑮ **Q656 Emitter**
V range : 1V/div.
H range : 10 μsec/div.



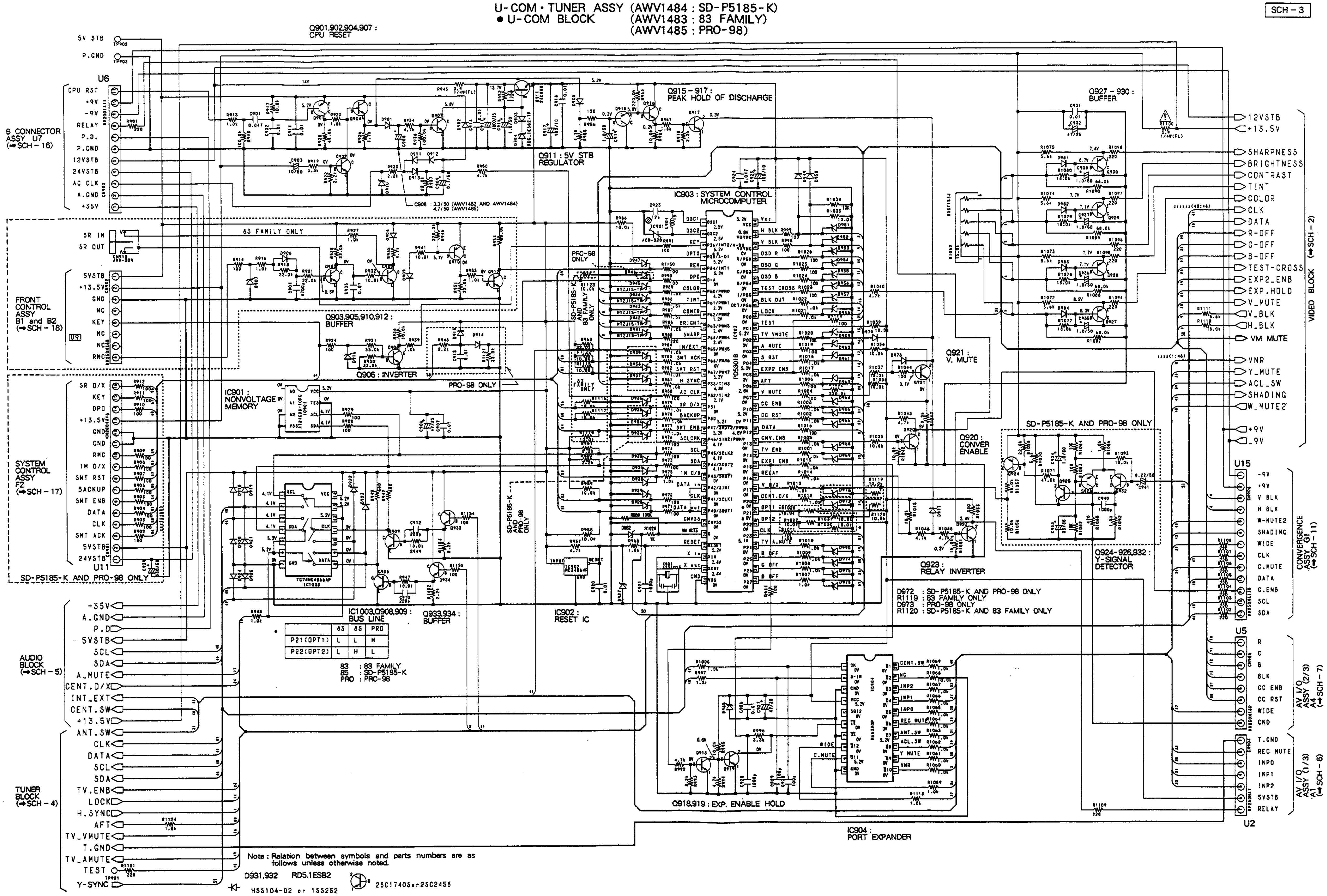
⑯ **TP-47 B**
V range : 2V/div.
H range : 10 μsec/div.



⑰

Note :
No. ⑰ waveform is indicated in SCH-15.

7.3 U-COM • TUNER ASSY (2/4)


1
2
3
4
5
6
A
B
C
D
U-COM • TUNER ASSY (AWV1484 : SD-P5185-K)
● U-COM BLOCK (AWV1483 : 83 FAMILY)
(AWV1485 : PRO-98)
Q901,902,904,907 : CPU RESET
5V STB
P.GND
U6
CPU RST
+9V
-9V
RELAY
P.D.
P.GND
12VSTB
24VSTB
AC CLK
A.GND
+35V
B CONNECTOR ASSY U7 (➡SCH – 16)
Q911 : 5V STB REGULATOR
Q915 - 917 : PEAK HOLD OF DISCHARGE
C908 : 3.3/50 (AWV1483 AND AWV1484) 4.7/50 (AWV1485)
83 FAMILY ONLY
SR IN
SR OUT
5VSTB
+13.5V
GND
NC
KEY
NC
NC
RMC
FRONT CONTROL ASSY B1 and B2 (➡SCH – 18)
Q903,905,910,912 : BUFFER
Q906 : INVERTER
PRO-98 ONLY
SR D/X
KEY
DPO
+13.5V
GND
GND
RMC
IM D/X
SMT RST
BACKUP
SMT ENB
DATA
CLK
SMT ACK
5VSTB
24VSTB
U11
SYSTEM CONTROL ASSY F2 (➡SCH – 17)
SD-P5185-K AND PRO-98 ONLY
IC901 : NONVOLTAGE MEMORY
IC903 : SYSTEM CONTROL MICROCOMPUTER
PD5301B
PRO-98 ONLY
SD-P5185-K AND 83 FAMILY ONLY
83 FAMILY ONLY
SD-P5185-K AND PRO-98 ONLY
IC1003,Q908,909 : BUS LINE
TC74HC4066AP IC1003
Q933,934 : BUFFER
IC902 : RESET IC
	83	85	PRO
P21(OPT1)	L	L	H
P22(OPT2)	L	H	L
83 : 83 FAMILY
85 : SD-P5185-K
PRO : PRO-98
Q921 : V. MUTE
Q920 : CONVER ENABLE
Q923 : RELAY INVERTER
D972 : SD-P5185-K AND PRO-98 ONLY
R1119 : 83 FAMILY ONLY
D973 : PRO-98 ONLY
R1120 : SD-P5185-K AND 83 FAMILY ONLY
Q927 - 930 : BUFFER
12VSTB
+13.5V
SHARPNESS
BRIGHTNESS
CONTRAST
TINT
COLOR
CLK
DATA
R-OFF
G-OFF
B-OFF
TEST-CROSS
EXP2_ENB
EXP.HOLD
V_MUTE
V_BLK
H_BLK
VM MUTE
VNR
Y_MUTE
ACL_SW
SHADING
W_MUTE2
+9V
-9V
VIDEO BLOCK (➡SCH – 2)
SD-P5185-K AND PRO-98 ONLY
Q924-926,932 : Y-SIGNAL DETECTOR
U15
-9V
+9V
V BLK
H BLK
W-MUTE2
SHADING
WIDE
CLK
C.MUTE
DATA
C.ENB
SCL
SDA
CONVERGENCE ASSY G1 (➡SCH – 11)
U5
R
G
B
BLK
CC ENB
CC RST
WIDE
GND
AV I/O ASSY (2/3) A4 (➡SCH – 7)
T.GND
REC MUTE
INP0
INP1
INP2
5VSTB
RELAY
U2
AV I/O ASSY (1/3) A1 (➡SCH – 6)
+35V
A.GND
P.D
5VSTB
SCL
SDA
A_MUTE
CENT.D/X
INT_EXT
CENT.SW
+13.5V
AUDIO BLOCK (➡SCH – 5)
ANT.SW
CLK
DATA
SCL
SDA
TV.ENB
LOCK
H.SYNC
AFT
TV_VMUTE
T.GND
TV_AMUTE
TEST
Y-SYNC
TUNER BLOCK (➡SCH – 4)
Q918,919 : EXP. ENABLE HOLD
IC904 : PORT EXPANDER
WIDE
C.MUTE

Note : Relation between symbols and parts numbers are as follows unless otherwise noted.

D931,932 RD5.1ESB2

HSS104-02 or 1SS252

MTZJ6.8 or RD6.8ESB

2SC1740Sor2SC2458

2SA933Sor2SC1048

SCH-3

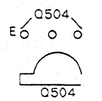
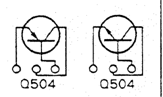
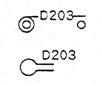
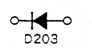
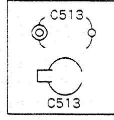
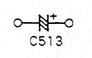
U-COM • TUNER
ASSY (2/4)

U-COM • TUNER
ASSY (2/4)

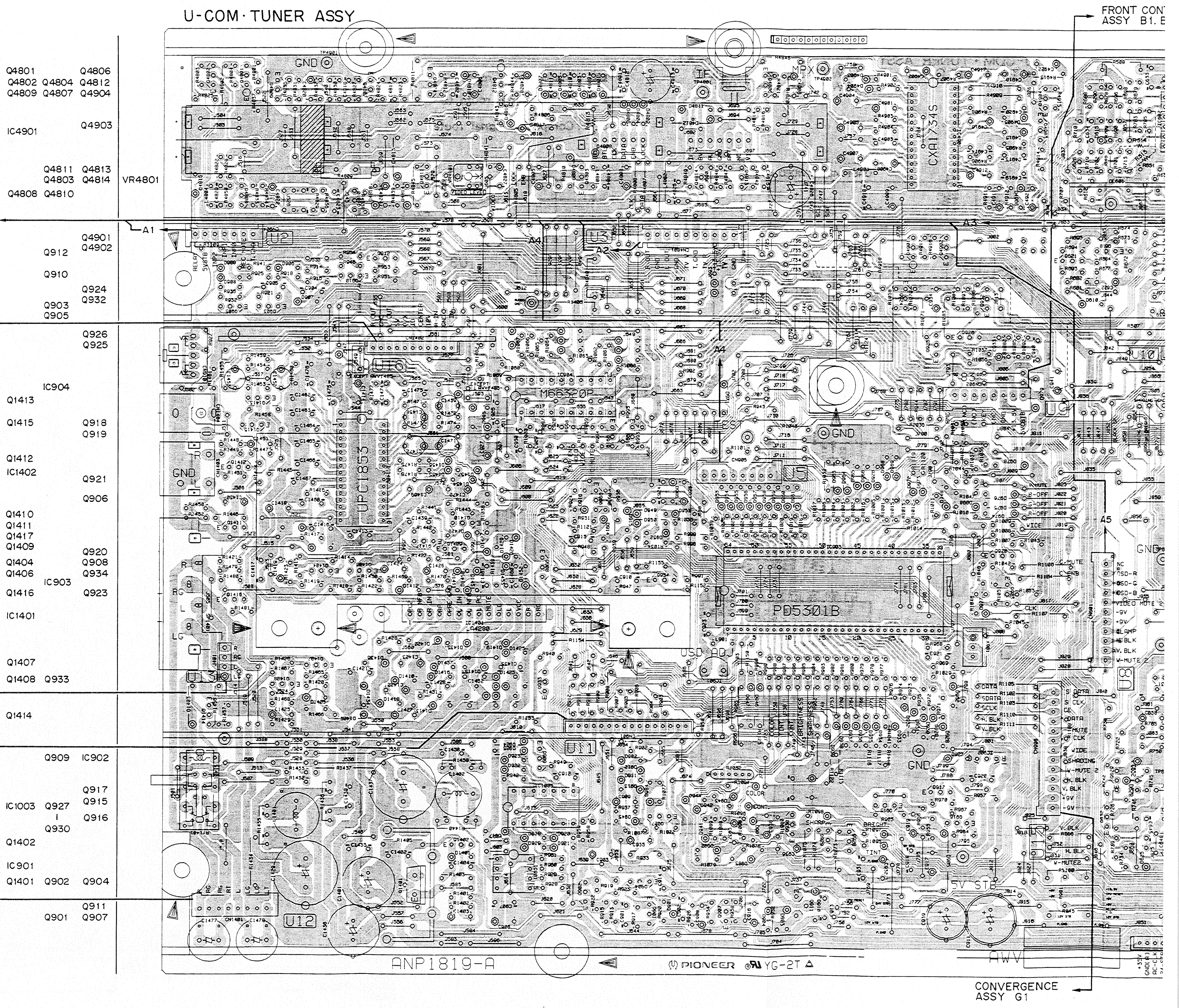
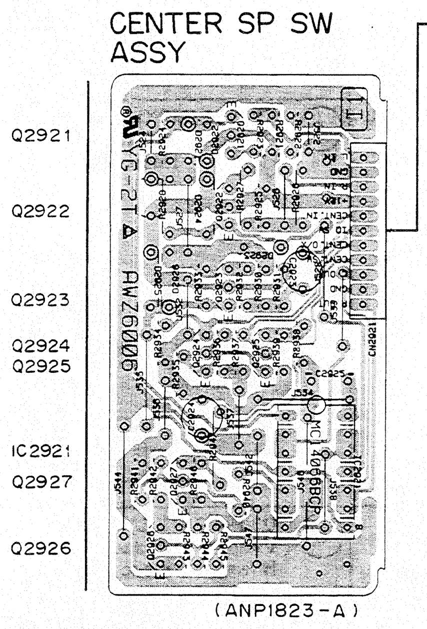
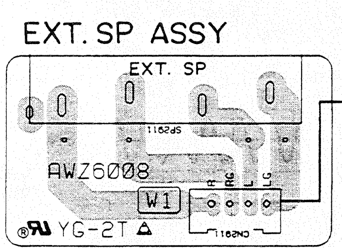
SCH-3

NOTE FOR PCB DIAGRAMS:

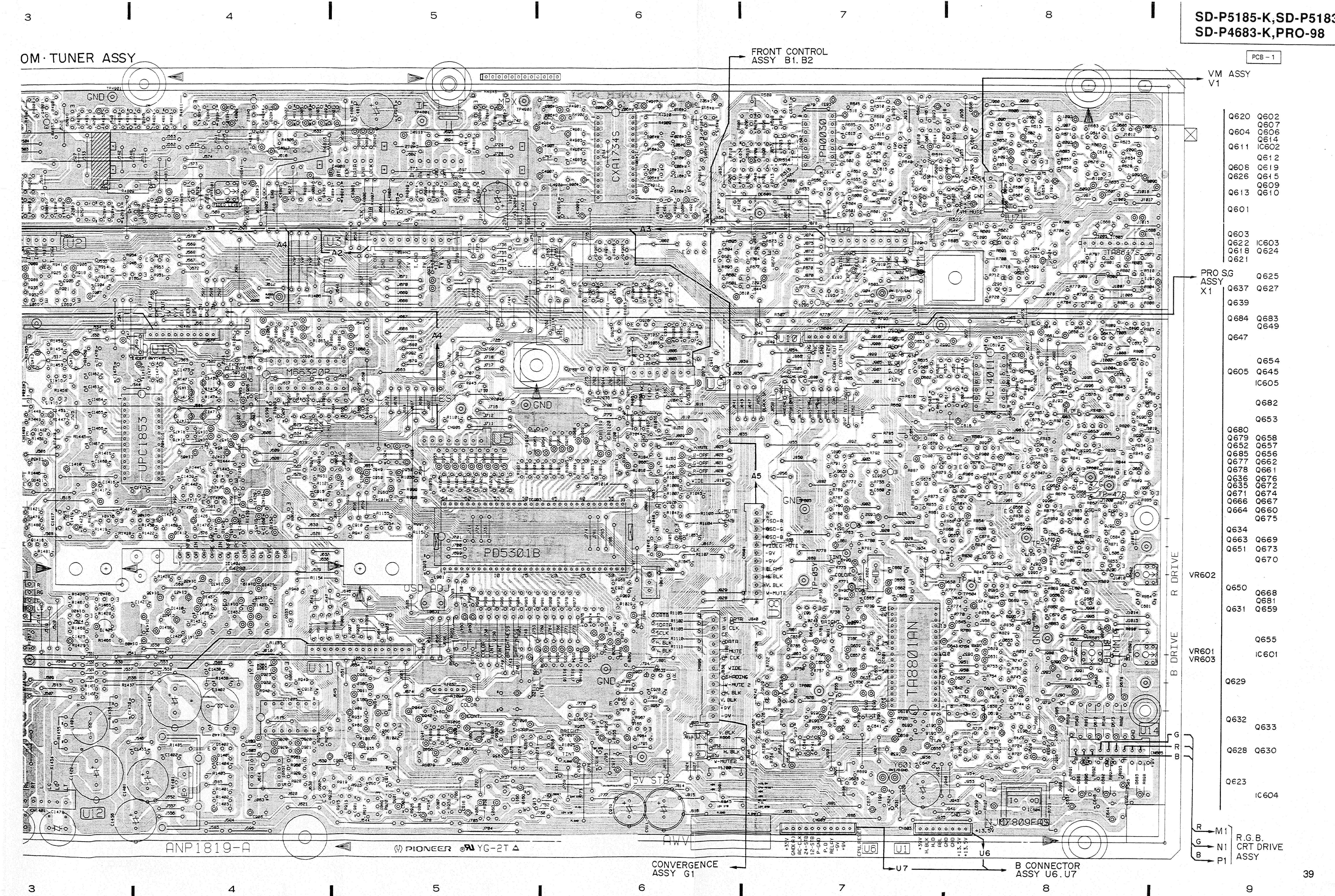
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
 Q504 E Q504	 Q504 Q504	Transistor
 D203 D203	 D203	Diode
 C513 C513	 C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ◎ or ⊂ shows cathode side.
5. The capacitor terminal marked with ◎ or ⊏ shows negative terminal.
6. The parts mounted on these PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.

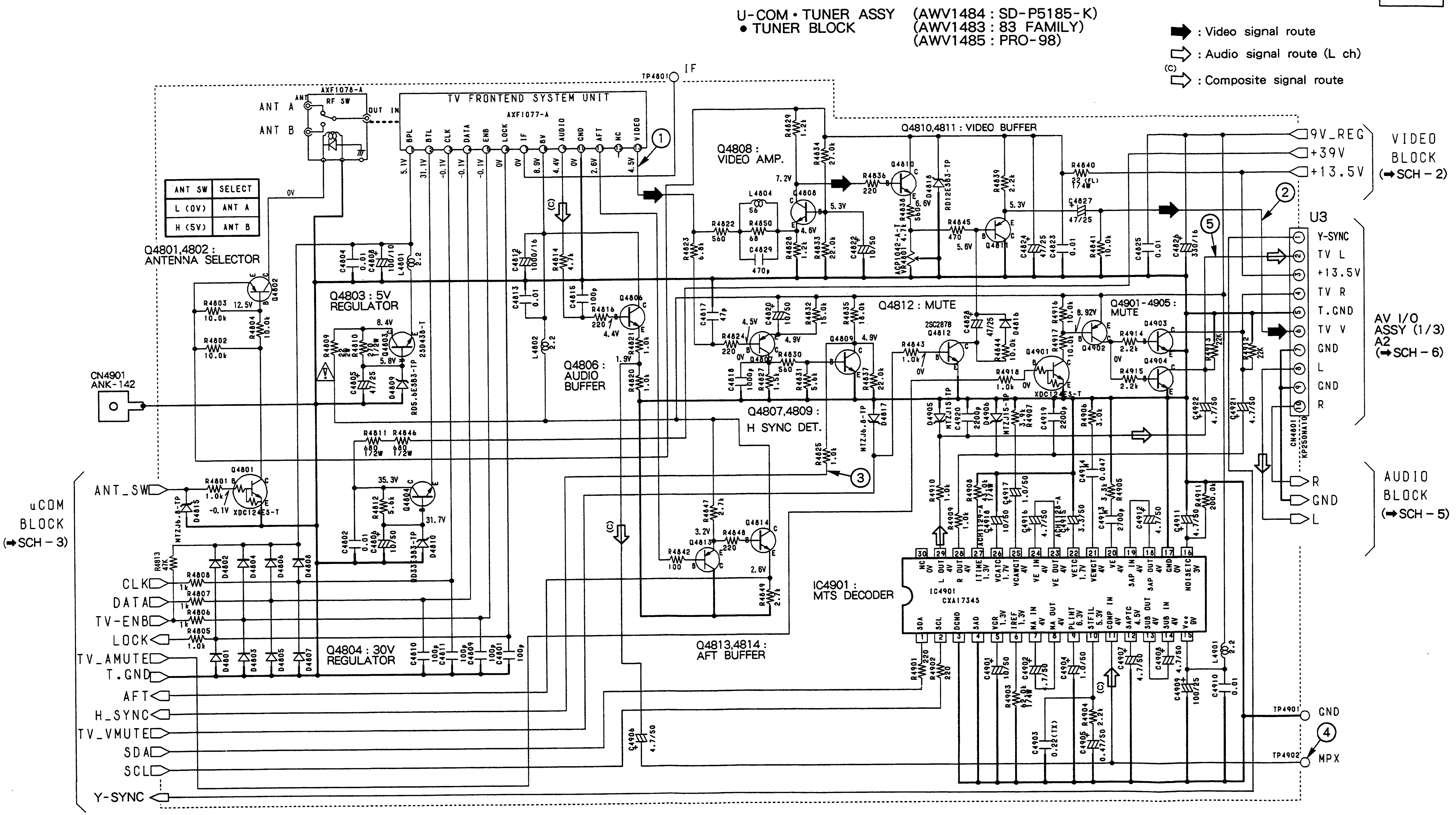

1 2 3 4 5 6
A B C D
U-COM·TUNER ASSY
FRONT CONT
ASSY B1. E
Q4801 Q4806
Q4802 Q4804 Q4812
Q4809 Q4807 Q4904
Q4903
IC4901
Q4811 Q4813
Q4803 Q4814
VR4801
Q4808 Q4810
AV I/O ASSY
A1. A2. A3.
A4. A5
A1
Q4901
Q4902
Q912
Q910
Q924
Q932
Q903
Q905
CENTER SP SW
ASSY
Q926
Q925
Q2921
Q2922
Q2923
Q2924
Q2925
IC2921
Q2927
Q2926
(ANP1823-A)
IC904
Q1413
Q1415
Q918
Q919
Q1412
IC1402
Q921
Q906
Q1410
Q1411
Q1417
Q1409
Q920
Q1404
Q908
Q1406
Q934
IC903
Q1416
Q923
IC1401
EXT. SP ASSY
EXT. SP
AWZ6008
W1
YG-2T
Q1407
Q1408 Q933
Q1414
SYSTEM
CONTROL
ASSY F2
Q909 IC902
Q917
Q915
IC1003 Q927
Q930
Q916
Q1402
IC901
Q1401 Q902 Q904
INT.
SPEAKERS
Q911
Q901 Q907
GND
IF
MPX
CXA1734S
M66320P
UPC1853
PD5301B
U2
U3
U5
U6
U8
U9
U10
U11
U12
A2
A3
A4
A5
GND
5V STB
ANP1819-A
PIONEER
YG-2T
AWV
CONVERGENCE
ASSY G1

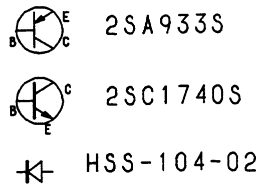
- This diagram is viewed from the mounted parts side.


3
4
5
6
7
8
PCB - 1
OM·TUNER ASSY
FRONT CONTROL
ASSY B1. B2
VM ASSY
V1
PRO S.G
ASSY
X1
GND
IF
MPX
CXA1734S
PA0030
TA8647S
M66320P
UPC1853
MC14011
PD5301B
TA8801AN
NJM7809FA
LA4200
U2
U3
U4
U5
U6
U7
U8
U9
U10
U11
U12
U14
U16
A2
A3
A4
A5
OSD ADJ
COLOR
CONT.
BRIGHT
TINT
5V STB
R DRIVE
B DRIVE
VR602
VR601
VR603
ANP1819-A
PIONEER
YG-2T
AWV
CONVERGENCE
ASSY G1
B CONNECTOR
ASSY U6. U7
R.G.B.
CRT DRIVE
ASSY
M1
N1
P1
R
G
B
Q620 Q602
Q607
Q604 Q606
Q614
Q611 IC602
Q612
Q608 Q619
Q626 Q615
Q609
Q613 Q610
Q601
Q603
Q622 IC603
Q618 Q624
Q621
Q625
Q637 Q627
Q639
Q684 Q683
Q649
Q647
Q654
Q605 Q645
IC605
Q682
Q653
Q680
Q679 Q658
Q652 Q657
Q685 Q656
Q677 Q662
Q678 Q661
Q636 Q676
Q635 Q672
Q671 Q674
Q666 Q667
Q664 Q660
Q675
Q634
Q663 Q669
Q651 Q673
Q670
Q650
Q668
Q681
Q631 Q659
Q655
IC601
Q629
Q632
Q633
Q628 Q630
Q623
IC604
A
B
C
D
9

7.4 U-COM • TUNER ASSY (3/4)

SCH – 4


U-COM • TUNER ASSY (AWV1484 : SD-P5185-K)
• TUNER BLOCK (AWV1483 : 83 FAMILY)
(AWV1485 : PRO-98)
: Video signal route
: Audio signal route (L ch)
(C) : Composite signal route
TV FRONTEND SYSTEM UNIT
AXF1077-A
AXF1078-A
RF SW
ANT A
ANT B
TP4801
IF
Q4801,4802 : ANTENNA SELECTOR
Q4803 : 5V REGULATOR
Q4804 : 30V REGULATOR
Q4806 : AUDIO BUFFER
Q4808 : VIDEO AMP.
Q4810,4811 : VIDEO BUFFER
Q4812 : MUTE
Q4901-4905 : MUTE
Q4807,4809 : H SYNC DET.
Q4813,4814 : AFT BUFFER
IC4901 : MTS DECODER
CXA1734S
CN4901
ANK-142
uCOM BLOCK (➡SCH – 3)
ANT_SW
CLK
DATA
TV-ENB
LOCK
TV_AMUTE
T.GND
AFT
H_SYNC
TV_VMUTE
SDA
SCL
Y-SYNC
9V_REG
+39V
+13.5V
VIDEO BLOCK (➡SCH – 2)
U3
Y-SYNC
TV L
+13.5V
TV R
T.GND
TV V
GND
L
GND
R
CN4801
KP250NA10
AV I/O ASSY (1/3) A2 (➡SCH – 6)
R
GND
L
AUDIO BLOCK (➡SCH – 5)
TP4901
GND
TP4902
MPX
ANT SW | SELECT
L (0V) | ANT A
H (5V) | ANT B


E
B
C
2SA933S
C
B
E
2SC1740S
HSS-104-02

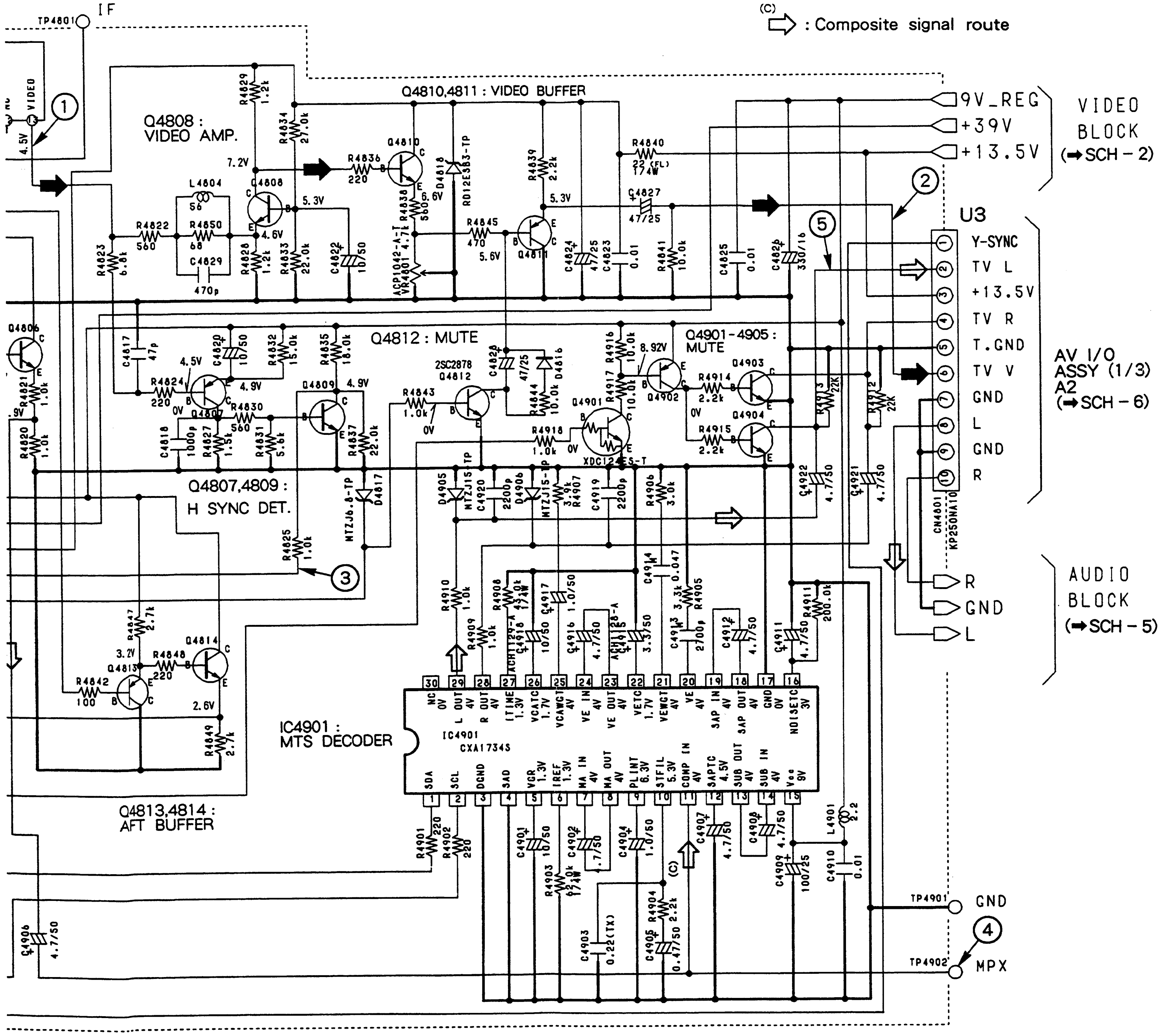
- Measuring condition of DC voltage
- ANTENNA SELECT : ANTNA A
- Video signal : NTSC color bar signal, 87.5% modulation
- Audio signal : 1kHz sine wave, frequency deviation ± 25kHz
  Monaural signal

Note : Relation between symbols and parts numbers are as follows unless otherwise noted.

SCH-4 U-COM • TUNER ASSY (3/4)

U-COM • TUNER ASSY (AWV1484 : SD-P5185-K)
• TUNER BLOCK (AWV1483 : 83 FAMILY)
(AWV1485 : PRO-98)

➡ : Video signal route
⇨ : Audio signal route (L ch)
(C)⇨ : Composite signal route


TP4801 IF
VIDEO
4.5V
①
Q4808 : VIDEO AMP.
Q4810,4811 : VIDEO BUFFER
9V_REG
+39V
+13.5V
VIDEO BLOCK (➡SCH – 2)
②
⑤
U3
Y-SYNC
TV L
+13.5V
TV R
T.GND
TV V
GND
L
GND
R
AV I/O ASSY (1/3) A2 (➡SCH – 6)
CN4801 KP250NA10
Q4812 : MUTE
2SC2878 Q4812
Q4901-4905 : MUTE
Q4807,4809 : H SYNC DET.
③
AUDIO BLOCK (➡SCH – 5)
R
GND
L
Q4813,4814 : AFT BUFFER
IC4901 : MTS DECODER
IC4901 CXA1734S
TP4901 GND
④
TP4902 MPX

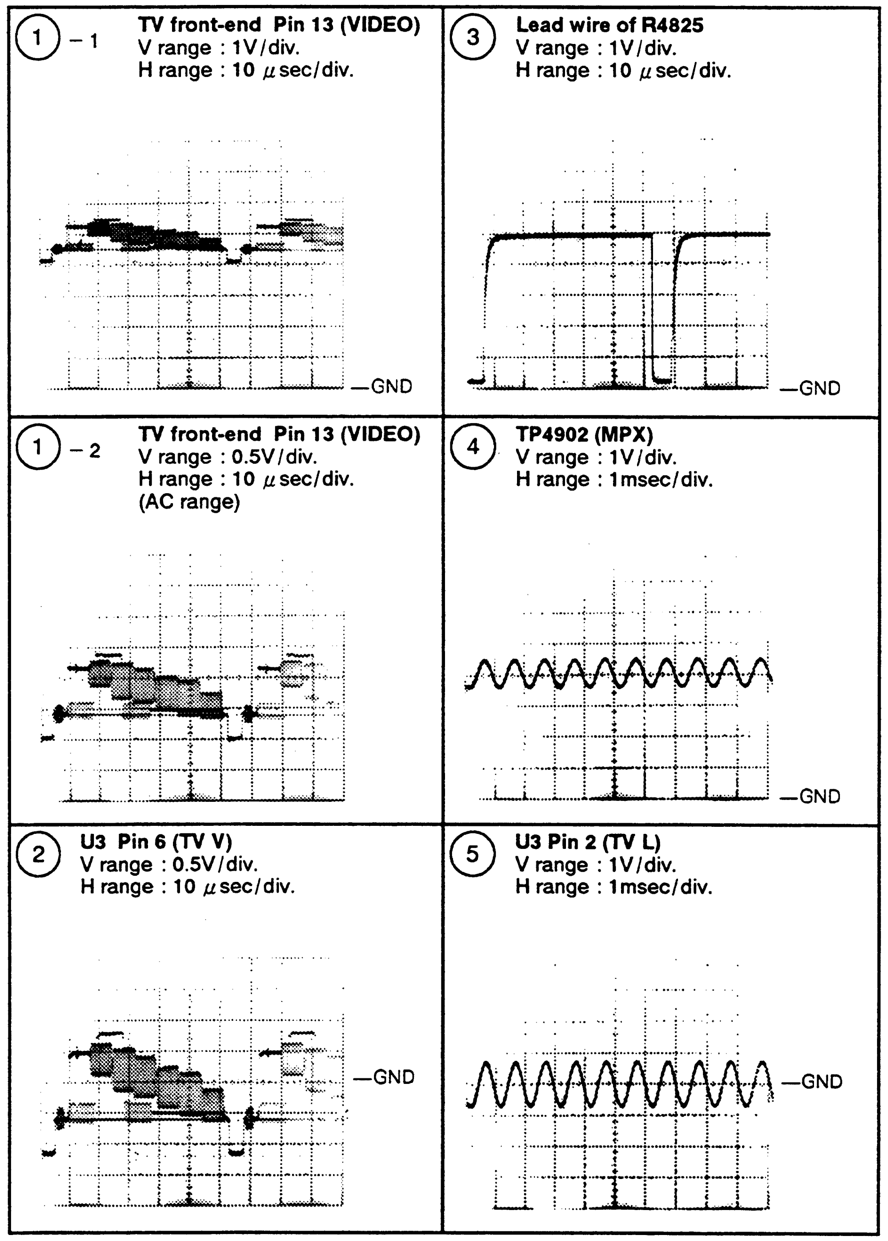
ꜱSA933S

ꜱSC1740S

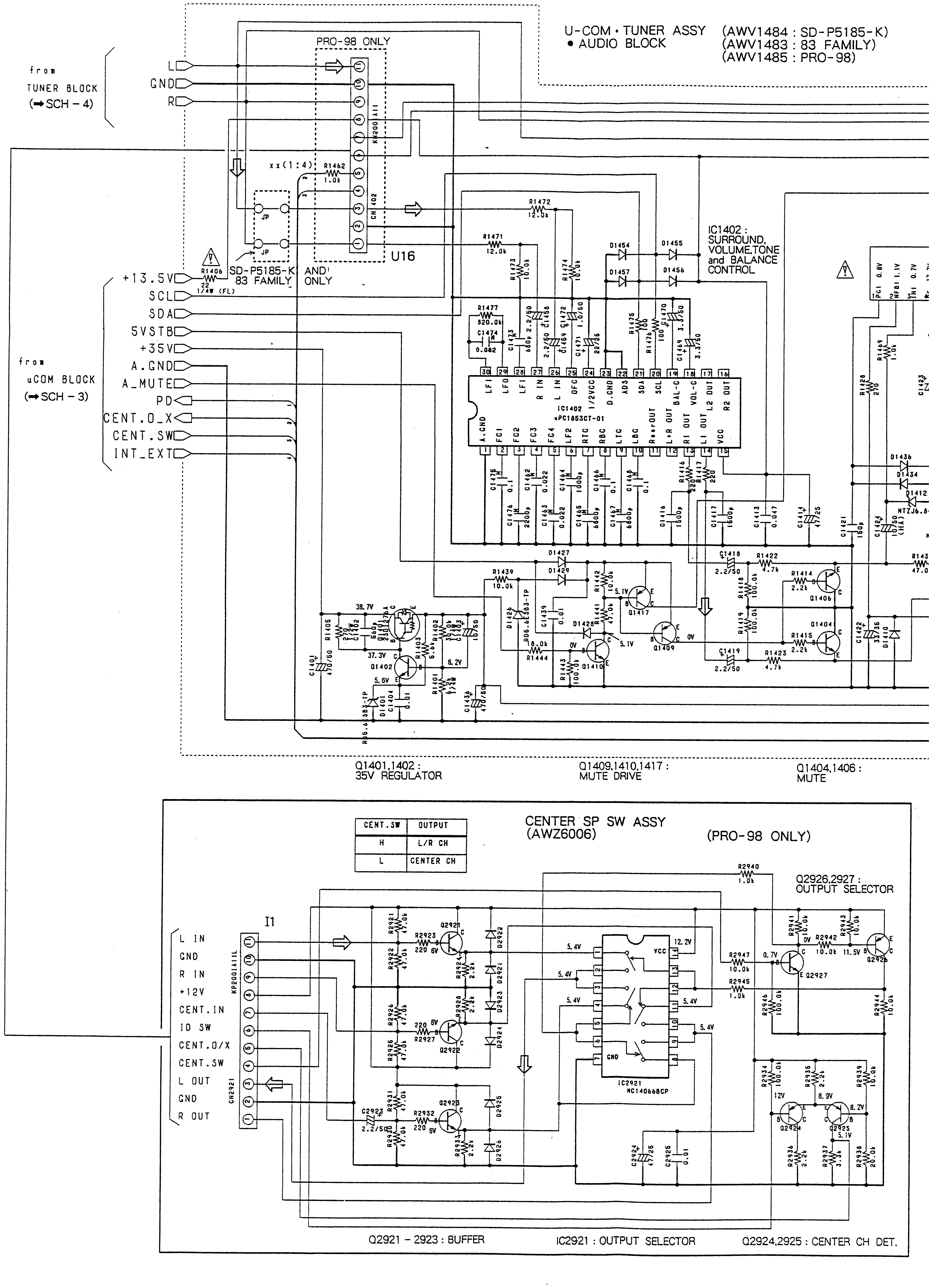
ꜱS-104-02

Note : Relation between symbols and parts numbers are as follows unless otherwise noted.

• Waveformes at U-COM•TUNER ASSY (TUNER BLOCK)
- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)



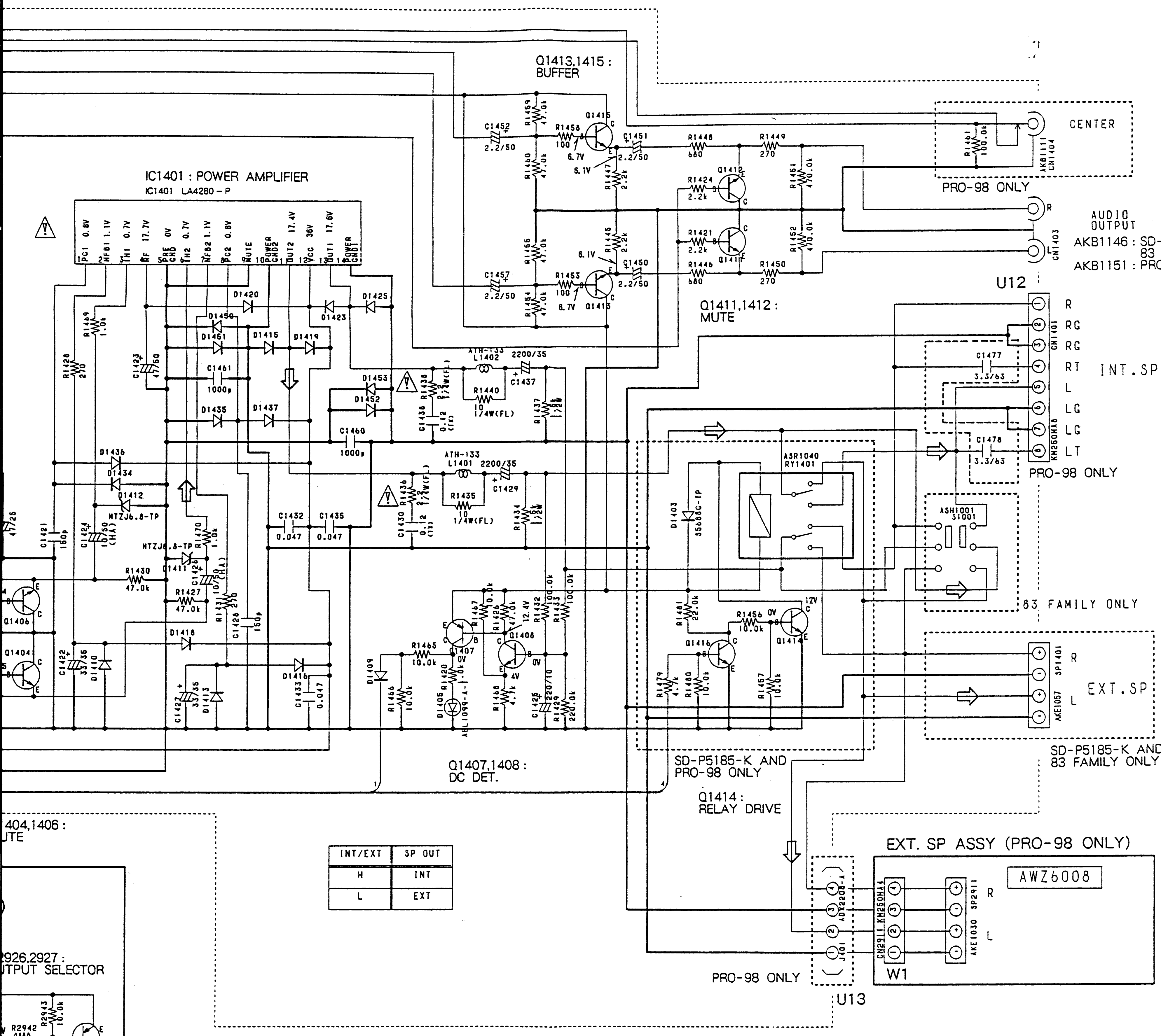
7.5 U-COM • TUNER ASSY (4/4), CENTER SP SW AND EXT. SP ASSEMBLIES


U-COM • TUNER ASSY
• AUDIO BLOCK
(AWV1484 : SD-P5185-K)
(AWV1483 : 83 FAMILY)
(AWV1485 : PRO-98)
from TUNER BLOCK (➡SCH - 4)
L
GND
R
PRO-98 ONLY
KM200A11
CN402
U16
xx(1:4)
R1462 1.0k
JP
SD-P5185-K AND 83 FAMILY ONLY
R1406 22 1/4W (FL)
from uCOM BLOCK (➡SCH - 3)
+13.5V
SCL
SDA
5VSTB
+35V
A.GND
A_MUTE
PD
CENT.O_X
CENT.SW
INT_EXT
IC1402 : SURROUND, VOLUME,TONE and BALANCE CONTROL
IC1402 uPC1853CT-01
Q1401,1402 : 35V REGULATOR
Q1409,1410,1417 : MUTE DRIVE
Q1404,1406 : MUTE
CENTER SP SW ASSY (AWZ6006)
(PRO-98 ONLY)
CENT.SW | OUTPUT
H | L/R CH
L | CENTER CH
Q2926,2927 : OUTPUT SELECTOR
I1
L IN
GND
R IN
+12V
CENT.IN
ID SW
CENT.O/X
CENT.SW
L OUT
GND
R OUT
KP2001A11L
CN2921
IC2921 MC14066BCP
Q2921 - 2923 : BUFFER
IC2921 : OUTPUT SELECTOR
Q2924,2925 : CENTER CH DET.

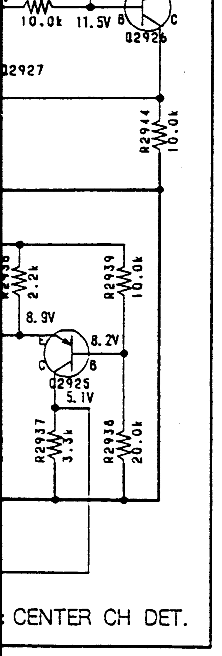
D-P5185-K)
B FAMILY)
RO-98)

- Measuring condition of DC voltage
- SP SELECT : INTERNAL
- A MUTE : OFF
- VOLUME : Min.
- TREBLE, BASS, BALANCE : CENTER (STEP 0)
- FRONT SURROUND : OFF

⇨ : Audio signal route (L ch)


Q1413,1415 :
BUFFER
IC1401 : POWER AMPLIFIER
IC1401 LA4280-P
PC1 0.8V
NFB1 1.1V
IN1 0.7V
RF 17.7V
PRE GND 0V
IN2 0.7V
NFB2 1.1V
PC2 0.8V
MUTE
POWER GND2
OUT2 17.4V
Vcc 36V
OUT1 17.6V
POWER GND1
CENTER
PRO-98 ONLY
AKB1111
CN1404
R1461 100.0k
AUDIO OUTPUT
CN1403
AKB1146 : SD-P5185-K AND 83 FAMILY
AKB1151 : PRO-98
U12
CN1401
KH260HA8
R
RG
RG
RT
L
LG
LG
LT
INT.SP
PRO-98 ONLY
C1477 3.3/63
C1478 3.3/63
Q1411,1412 :
MUTE
ASR1040
RY1401
ASH1001
S1001
83 FAMILY ONLY
AKE1057
SP1401
EXT.SP
SD-P5185-K AND 83 FAMILY ONLY
SD-P5185-K AND PRO-98 ONLY
Q1414 :
RELAY DRIVE
Q1407,1408 :
DC DET.
404,1406 :
UTE
D1403 S5688G-TP
ATH-133 L1401 2200/35
ATH-133 L1402 2200/35
C1429
C1437
R1435 10 1/4W(FL)
R1440 10 1/4W(FL)
C1430 0.12
C1438 0.12
R1436
R1438
R1434
R1437
C1432 0.047
C1435 0.047
C1460 1000p
C1461 1000p
D1420
D1425
D1423
D1450
D1451
D1415
D1419
D1453
D1452
D1435
D1437
D1436
D1434
D1412
MTZJ6.8-TP
D1411
R1470 1.0k
R1469 1.0k
R1428 270
C1423 47/50
C1421 150p
C1424 10/50 (HA)
C1426 10/50 (HA)
R1430 47.0k
R1427 47.0k
R1431 270
C1428 150p
D1418
C1422 33/35
D1410
C1427 33/35
D1413
D1416
C1433 0.047
D1409
R1466 10.0k
R1465 10.0k
R1420
D1405
AEL1099-A-1
Q1407
Q1408
R1467 10.0k
R1426 47.0k
R1468 4.7k
12.4V
R1432 100.0k
R1433 100.0k
C1425 220/10
R1429 220.0k
R1481 22.0k
R1456 10.0k
Q1416
Q1414
12V
R1479 4.7k
R1480 10.0k
R1457 10.0k
Q1404
Q1406
C1452 2.2/50
C1457 2.2/50
R1459 47.0k
R1460 47.0k
R1455 47.0k
R1454 47.0k
R1458 100
R1453 100
Q1415
Q1413
6.7V
6.1V
C1451 2.2/50
C1450 2.2/50
R1447 2.2k
R1445 2.2k
R1448 680
R1446 680
R1449 270
R1450 270
Q1412
Q1411
R1424 2.2k
R1421 2.2k
R1451 470.0k
R1452 470.0k
EXT. SP ASSY (PRO-98 ONLY)
AWZ6008
J401
ADX2208-A
CN2911 KH250HA4
AKE1030
SP2911
R
L
W1
PRO-98 ONLY
U13

INT/EXT	SP OUT
H	INT
L	EXT


2926,2927 :
TPUT SELECTOR
R2942 10.0k
11.5V
R2943 10.0k
Q2926
Q2927
R2944 10.0k
R2939 10.0k
8.9V
8.2V
Q2925
5.1V
R2937 3.3k
R2938 20.0k
CENTER CH DET.

Note : Relation between symbols and parts numbers are as follows unless otherwise noted.

2SC1740S or 2SC2458

2SA933 or 2SA1048

HSS104-02 or 1SS252

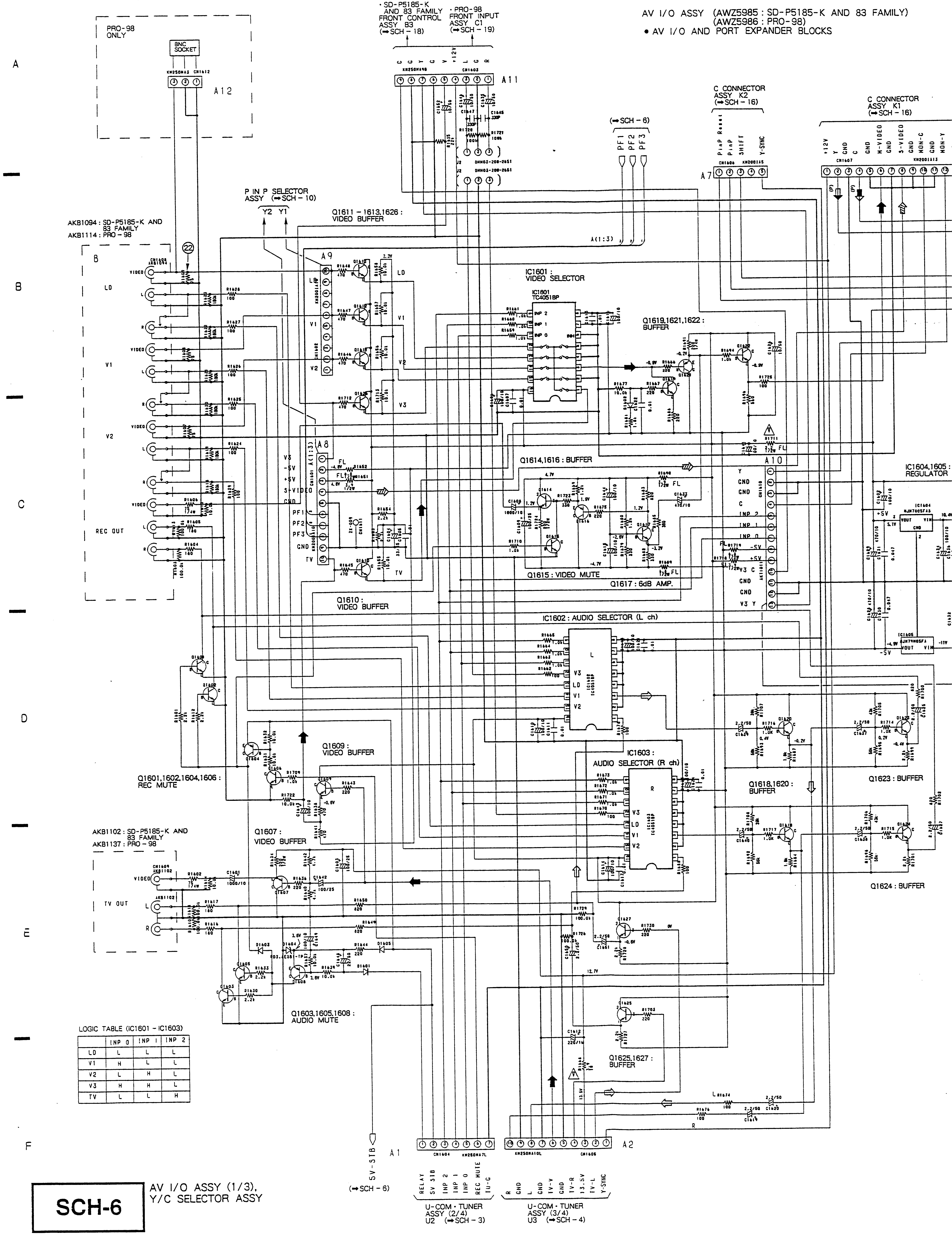
IC1402 (UPC1853CT - 01)

Pin	Voltage (V)	Pin	Voltage (V)
1	0	16	6.2
2	6.2	17	6.2
3	6.2	18	3.7
4	6.2	19	4.8
5	6.2	20	—
6	6.2	21	—
7	6.2	22	0
8	6.2	23	0
9	6.2	24	6.2
10	6.2	25	6.2
11	6.2	26	6.2
12	6.2	27	6.2
13	6.2	28	6.2
14	6.2	29	6.2
15	12.4	30	6.2

7.6 AV I/O ASSY (1/3) AND Y/C SELECTOR ASSY

AV I/O ASSY (AWZ5985 : SD-P5185-K AND 83 FAMILY)
(AWZ5986 : PRO-98)

- AV I/O AND PORT EXPANDER BLOCKS



1
2
3
4
5
A
B
C
D
E
F
PRO-98 ONLY
BNC SOCKET
A12
· SD-P5185-K AND 83 FAMILY FRONT CONTROL ASSY B3 (➡SCH - 18)
· PRO-98 FRONT INPUT ASSY C1 (➡SCH - 19)
C Y G V +12V L G R
A11
(➡SCH - 6)
PF1
PF2
PF3
C CONNECTOR ASSY K2 (➡SCH - 16)
PinP Reset
PinP
SHIFT
Y-SYNC
A7
C CONNECTOR ASSY K1 (➡SCH - 16)
+12V
Y
GND
C
GND
M-VIDEO
GND
S-VIDEO
GND
MON-C
GND
MON-Y
P IN P SELECTOR ASSY (➡SCH - 10)
Y2
Y1
AKB1094 : SD-P5185-K AND 83 FAMILY
AKB1114 : PRO - 98
Q1611 - 1613,1626 : VIDEO BUFFER
A(1:3)
A9
IC1601 : VIDEO SELECTOR
IC1601 TC4051BP
INP 2
INP 1
INP 0
Q1619,1621,1622 : BUFFER
LD
V1
V2
V3
REC OUT
VIDEO
L
R
A8
-5V
+5V
S-VIDEO
GND
PF1
PF2
PF3
TV
FL
Q1614,1616 : BUFFER
A10
Y
GND
C
INP 2
INP 1
INP 0
V3 C
V3 Y
IC1604,1605 : REGULATOR
Q1615 : VIDEO MUTE
Q1617 : 6dB AMP.
Q1610 : VIDEO BUFFER
IC1602 : AUDIO SELECTOR (L ch)
Q1609 : VIDEO BUFFER
IC1603 : AUDIO SELECTOR (R ch)
Q1618,1620 : BUFFER
Q1623 : BUFFER
Q1601,1602,1604,1606 : REC MUTE
AKB1102 : SD-P5185-K AND 83 FAMILY
AKB1137 : PRO - 98
Q1607 : VIDEO BUFFER
TV OUT
Q1624 : BUFFER
Q1603,1605,1608 : AUDIO MUTE
Q1625,1627 : BUFFER
5V-STB
(➡SCH - 6)
A1
RELAY
5V STB
INP 2
INP 1
INP 0
REC MUTE
TU-C
U-COM · TUNER ASSY (2/4) U2 (➡SCH - 3)
A2
R
GND
L
GND
TV-V
GND
TV-R
13.5V
TV-L
Y-SYNC
U-COM · TUNER ASSY (3/4) U3 (➡SCH - 4)

LOGIC TABLE (IC1601 - IC1603)

	INP 0	INP 1	INP 2
LD	L	L	L
V1	H	L	L
V2	L	H	L
V3	H	H	L
TV	L	L	H

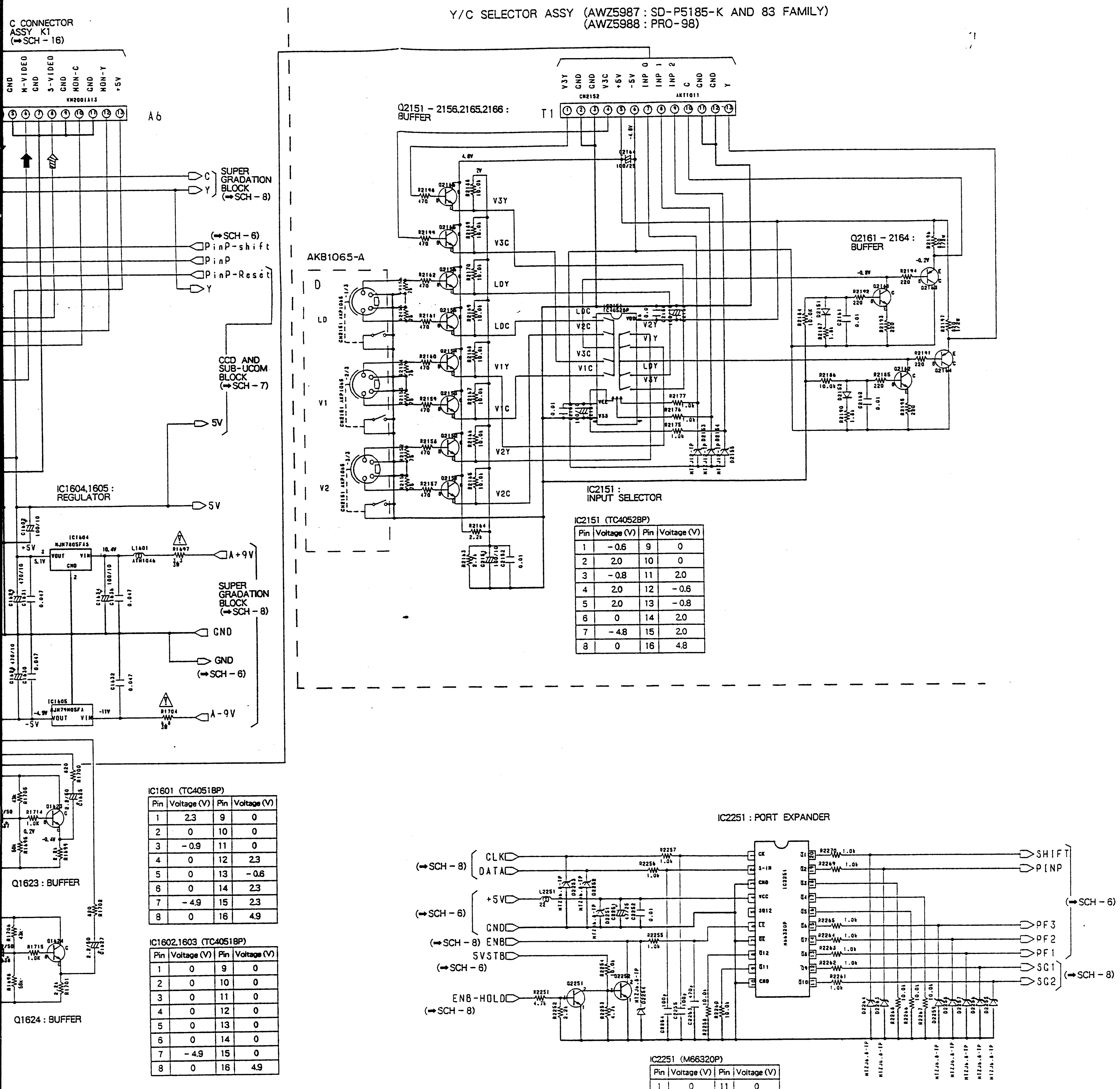
SCH-6

AV I/O ASSY (1/3),
Y/C SELECTOR ASSY

3 FAMILY)

➡ : Video signal route (Main-picture)
⇨ : Audio signal route (L ch)
▨ : Video signal route (Sub-picture)
(P) ⇨ : P IN P Y-signal route
(P) ➡ : P IN P C-signal route

Y/C SELECTOR ASSY (AWZ5987 : SD-P5185-K AND 83 FAMILY) (AWZ5988 : PRO-98)


C CONNECTOR
ASSY K1
(➡SCH – 16)
GND
M-VIDEO
GND
S-VIDEO
GND
MON-C
GND
MON-Y
+5V
KM200I13
A6
C
Y
SUPER GRADATION BLOCK (➡SCH – 8)
(➡SCH – 6)
PinP-shift
PinP
PinP-Reset
Y
CCD AND SUB-UCOM BLOCK (➡SCH – 7)
5V
IC1604,1605 : REGULATOR
5V
IC1604
NJM7805FA
IC1605
NJM7905FA
L1601
A+9V
SUPER GRADATION BLOCK (➡SCH – 8)
GND
GND
(➡SCH – 6)
A-9V
R1697
R1704
Q1623 : BUFFER
Q1624 : BUFFER
Q2151 – 2156,2165,2166 :
BUFFER
T1
V3Y
GND
GND
V3C
+5V
-5V
INP 0
INP 1
INP 2
C
GND
GND
Y
CN2152
AKT1011
AKB1065-A
D
LD
V1
V2
CN2151 AKP1045
V3Y
V3C
LDY
LDC
V1Y
V1C
V2Y
V2C
IC2151 : INPUT SELECTOR
TC4052BP
Q2161 – 2164 :
BUFFER
IC2251 : PORT EXPANDER
M66320P
CLK
DATA
(➡SCH – 8)
+5V
GND
(➡SCH – 6)
ENB
(➡SCH – 8)
5VSTB
(➡SCH – 6)
ENB-HOLD
(➡SCH – 8)
Q2251
Q2252
SHIFT
PINP
(➡SCH – 6)
PF3
PF2
PF1
SC1
SC2
(➡SCH – 8)
CK
S-IN
CMD
VCC
SB12
LE
OE
Q11
Q12
GND
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10

IC2151 :
INPUT SELECTOR

IC2151 (TC4052BP)

Pin	Voltage (V)	Pin	Voltage (V)
1	– 0.6	9	0
2	2.0	10	0
3	– 0.8	11	2.0
4	2.0	12	– 0.6
5	2.0	13	– 0.8
6	0	14	2.0
7	– 4.8	15	2.0
8	0	16	4.8

IC1601 (TC4051BP)

Pin	Voltage (V)	Pin	Voltage (V)
1	2.3	9	0
2	0	10	0
3	– 0.9	11	0
4	0	12	2.3
5	0	13	– 0.6
6	0	14	2.3
7	– 4.9	15	2.3
8	0	16	4.9

IC1602,1603 (TC4051BP)

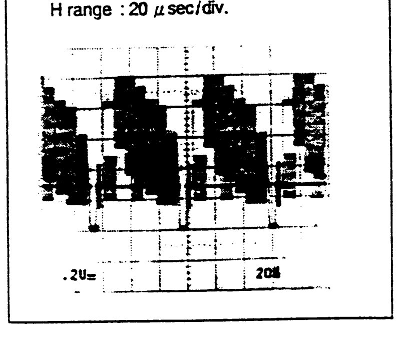
Pin	Voltage (V)	Pin	Voltage (V)
1	0	9	0
2	0	10	0
3	0	11	0
4	0	12	0
5	0	13	0
6	0	14	0
7	– 4.9	15	0
8	0	16	4.9

IC2251 (M66320P)

Pin	Voltage (V)	Pin	Voltage (V)
1	0	11	0
2	0	12	0
3	0	13	0
4	5.1	14	0
5	5.1	15	0
6	0.2	16	0
7	0	17	0
8	0	18	0
9	0	19	0
10	0	20	0

- Input signal : Color bar
- Picture quality : Standard
- DC range

㉒ **LD VIDEO IN**
V range : 0.2V/div.
H range : 20 μsec/div.

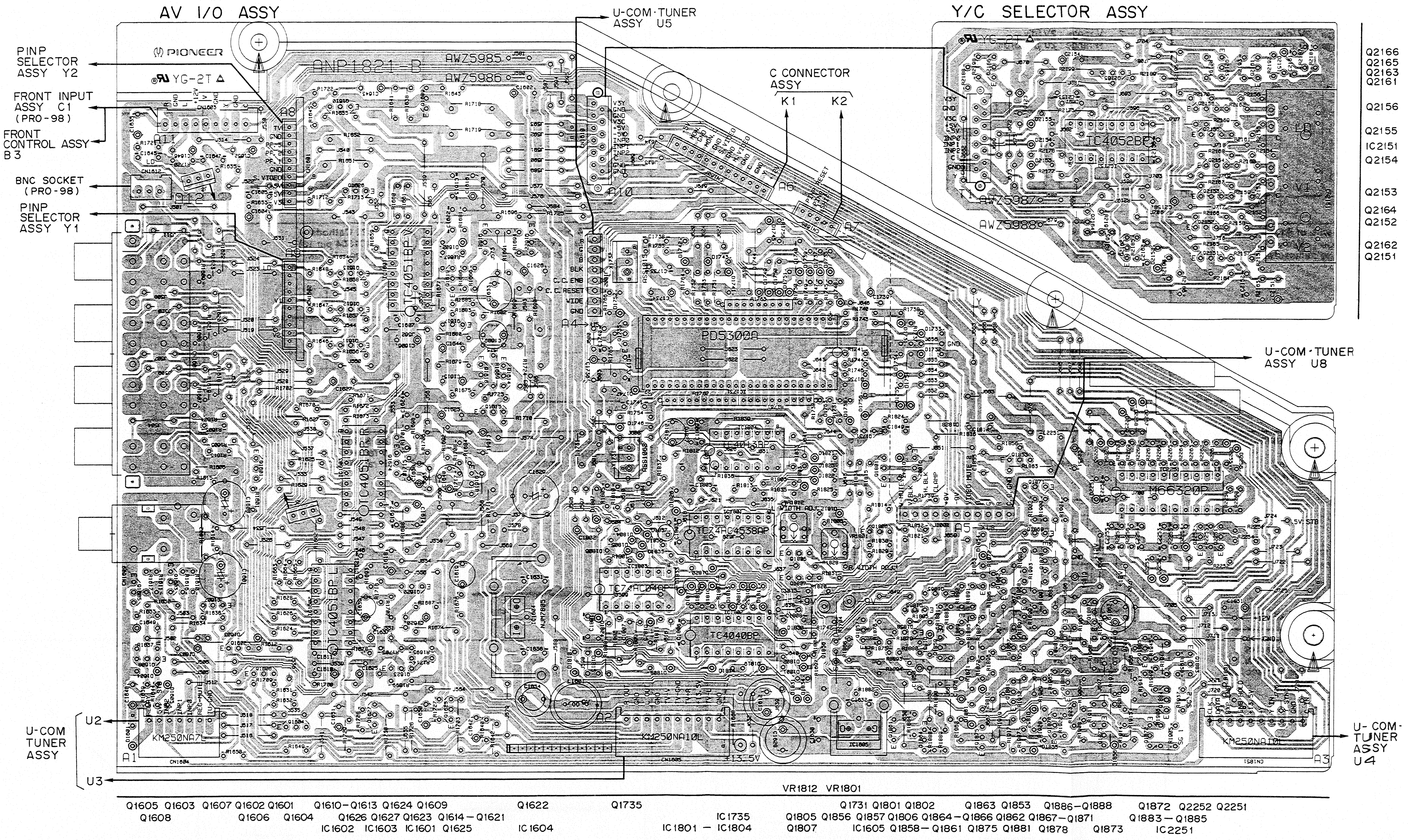


AV I/O ASSY (1/3),
Y/C SELECTOR ASSY

SCH-6

- This diagram is viewed from the mounted parts side.

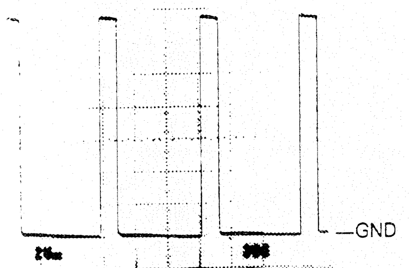
PCB - 2


AV I/O ASSY
Y/C SELECTOR ASSY
PIONEER
ANP1821-B
AWZ5985
AWZ5986
AWZ5987
AWZ5988
YG-2T
PINP SELECTOR ASSY Y2
FRONT INPUT ASSY C1 (PRO-98)
FRONT CONTROL ASSY B3
BNC SOCKET (PRO-98)
PINP SELECTOR ASSY Y1
U-COM·TUNER ASSY U5
C CONNECTOR ASSY
K1
K2
U-COM·TUNER ASSY U8
U-COM TUNER ASSY
U2
U3
U-COM·TUNER ASSY U4
A1
A2
A3
A4
A5
A6
A7
A8
A10
A11
A12
PD5300A
TC4051BP
TC4052BP
TC74HC4538AP
TC74HC04BP
TC4040BP
M66320P
KM250NA7L
KM250NA10L
WIDTH ADJ.
+13.5V
+12V
5V STB
GND
BLK
C.C.ENB
C.C.RESET
WIDE
Q2166
Q2165
Q2163
Q2161
Q2156
Q2155
IC2151
Q2154
Q2153
Q2164
Q2152
Q2162
Q2151
VR1812 VR1801
Q1605 Q1603 Q1607 Q1602 Q1601
Q1608
Q1606 Q1604
Q1610–Q1613 Q1624 Q1609
Q1626 Q1627 Q1623 Q1614–Q1621
IC1602 IC1603 IC1601 Q1625
Q1622
IC1604
Q1735
IC1735
IC1801 – IC1804
Q1731 Q1801 Q1802
Q1805 Q1856 Q1857 Q1806 Q1864–Q1866 Q1862 Q1867–Q1871
Q1807
IC1605 Q1858–Q1861 Q1875 Q1881 Q1878
Q1863 Q1853 Q1886–Q1888
Q1873
Q1872 Q2252 Q2251
Q1883–Q1885
IC2251

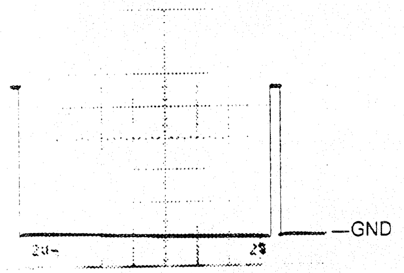
• Waveformes at AV I/O ASSY (CCD BLOCK)

- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

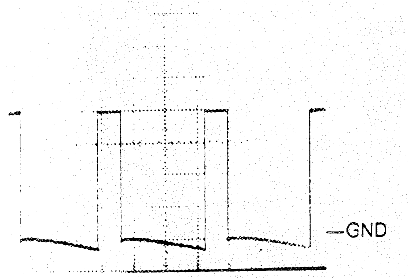
① **Lead wire of R1821 (H. BLK)**
V range : 2V/div.
H range : 20 μsec/div.



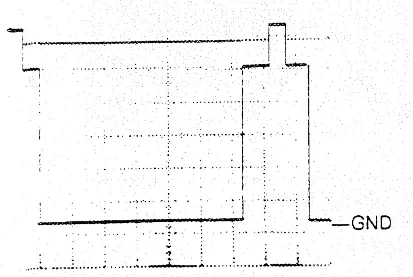
② **Lead wire of R1739 (V. BLK)**
V range : 2V/div.
H range : 2msec/div.



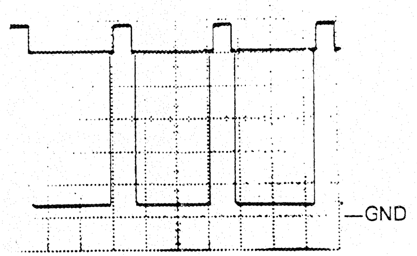
③ **Lead wire of R1832 (WIDE MUTE 2)**
V range : 1V/div.
H range : 5msec/div.



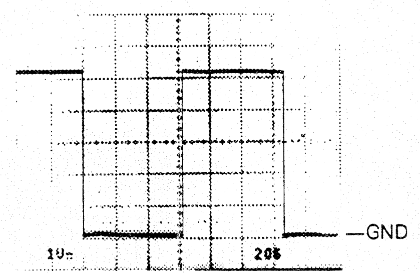
④ – 1 **Q1801 Collector**
V range : 2V/div.
H range : 2msec/div.
(V rate)



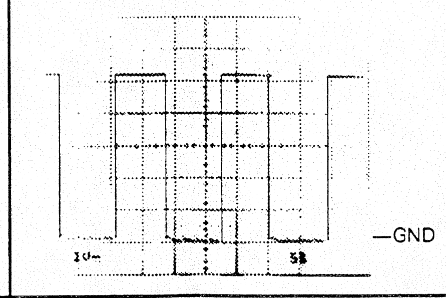
④ – 2 **Q1801 Collector**
V range : 2V/div.
H range : 20 μsec/div.
(H rate)



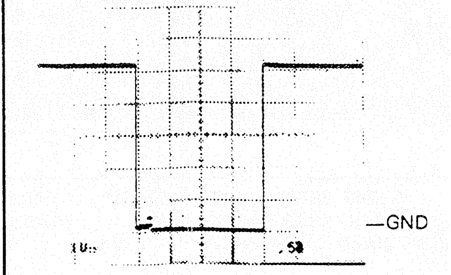
⑤ **IC1802 pin 9**
V range : 1V/div.
H range : 20 μsec/div.



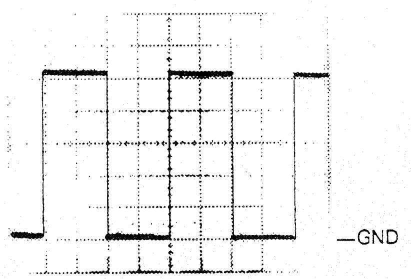
⑥ **IC1802 pin 13**
V range : 1V/div.
H range : 5msec/div.



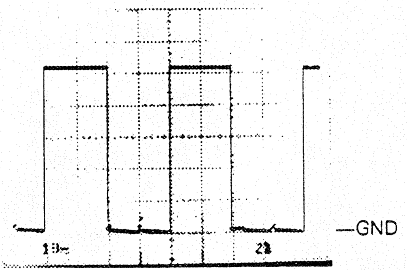
⑦ **IC1802 pin 2**
V range : 1V/div.
H range : 0.5msec/div.



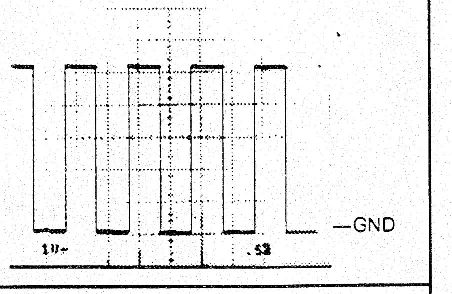
⑧ **IC1802 pin 3**
V range : 1V/div.
H range : 0.5msec/div.



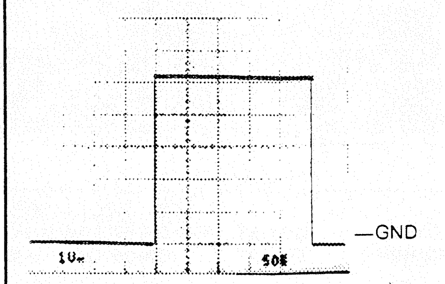
⑨ **IC1802 pin 4**
V range : 1V/div.
H range : 2msec/div.



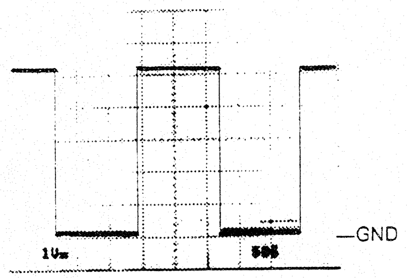
⑩ **IC1802 pin 5**
V range : 1V/div.
H range : 0.5msec/div.



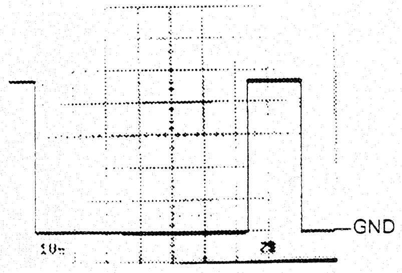
⑪ **IC1802 pin 6**
V range : 1V/div.
H range : 50 μsec/div.



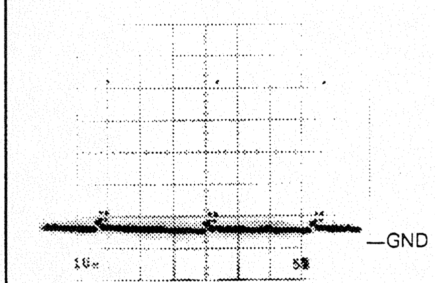
⑫ **IC1802 pin 7**
V range : 1V/div.
H range : 50 μsec/div.



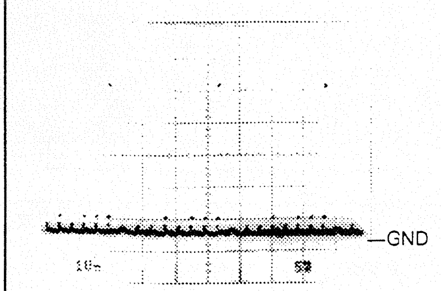
⑬ **IC1804 pin 2**
V range : 1V/div.
H range : 2msec/div.



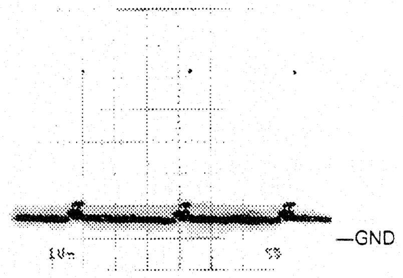
⑭ **IC1804 pin 3**
V range : 1V/div.
H range : 5msec/div.



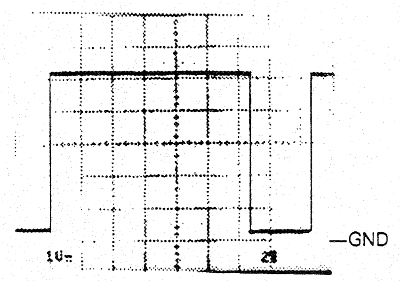
⑮ **IC1804 pin 4**
V range : 1V/div.
H range : 5msec/div.



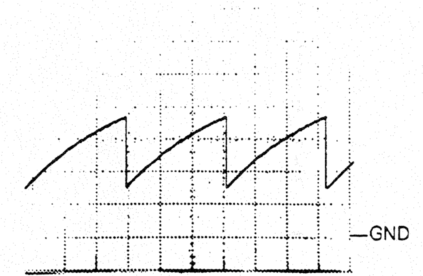
⑯ **IC1804 pin 11**
V range : 1V/div.
H range : 5msec/div.



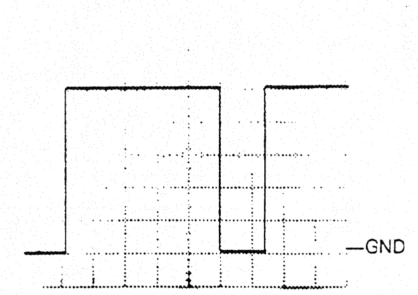
⑰ **D1821 Cathode**
(or IC1804 pin 13)
V range : 1V/div.
H range : 2msec/div.



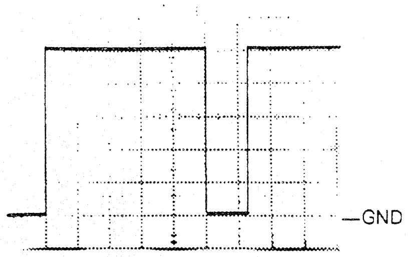
⑱ **IC1801 pin 2**
V range : 1V/div.
H range : 20 μsec/div.



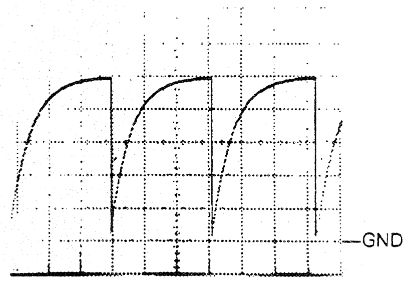
⑲ **IC1801 pin 6**
V range : 1V/div.
H range : 10 μsec/div.



⑳ **IC1801 pin 9**
V range : 1V/div.
H range : 10 μsec/div.



㉑ **IC1801 pin 14**
V range : 1V/div.
H range : 20 μsec/div.



7.7 AV I/O ASSY (2/3)

1.RESISTERS

Indicated in 1/8W; 5%

tolerance unless oterwise notes k:k ,M:M .

2.CAPACITORS

Indicated in capacity (uF)/voltage unless

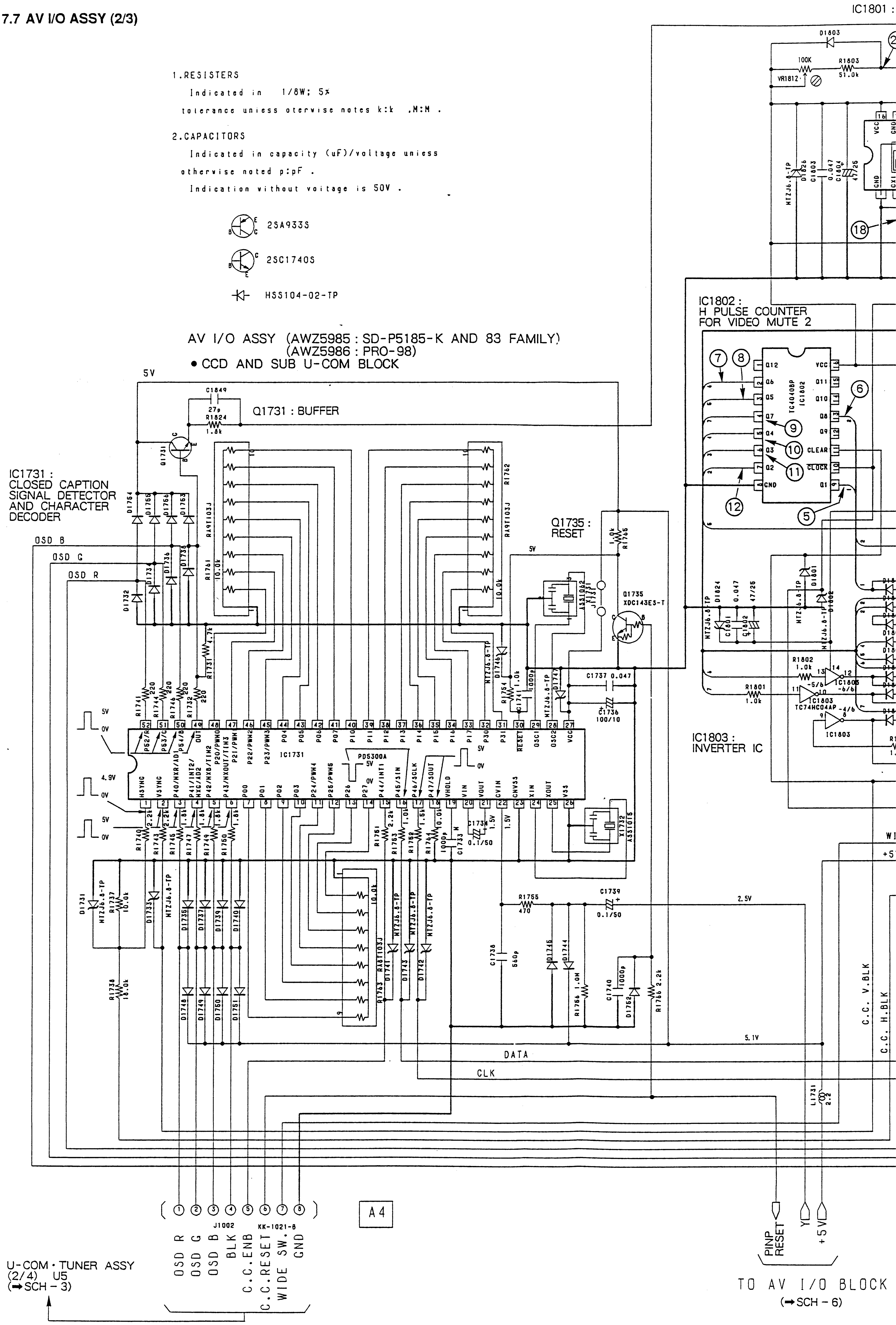
otherwise noted p:pF .

Indication without voltage is 50V .

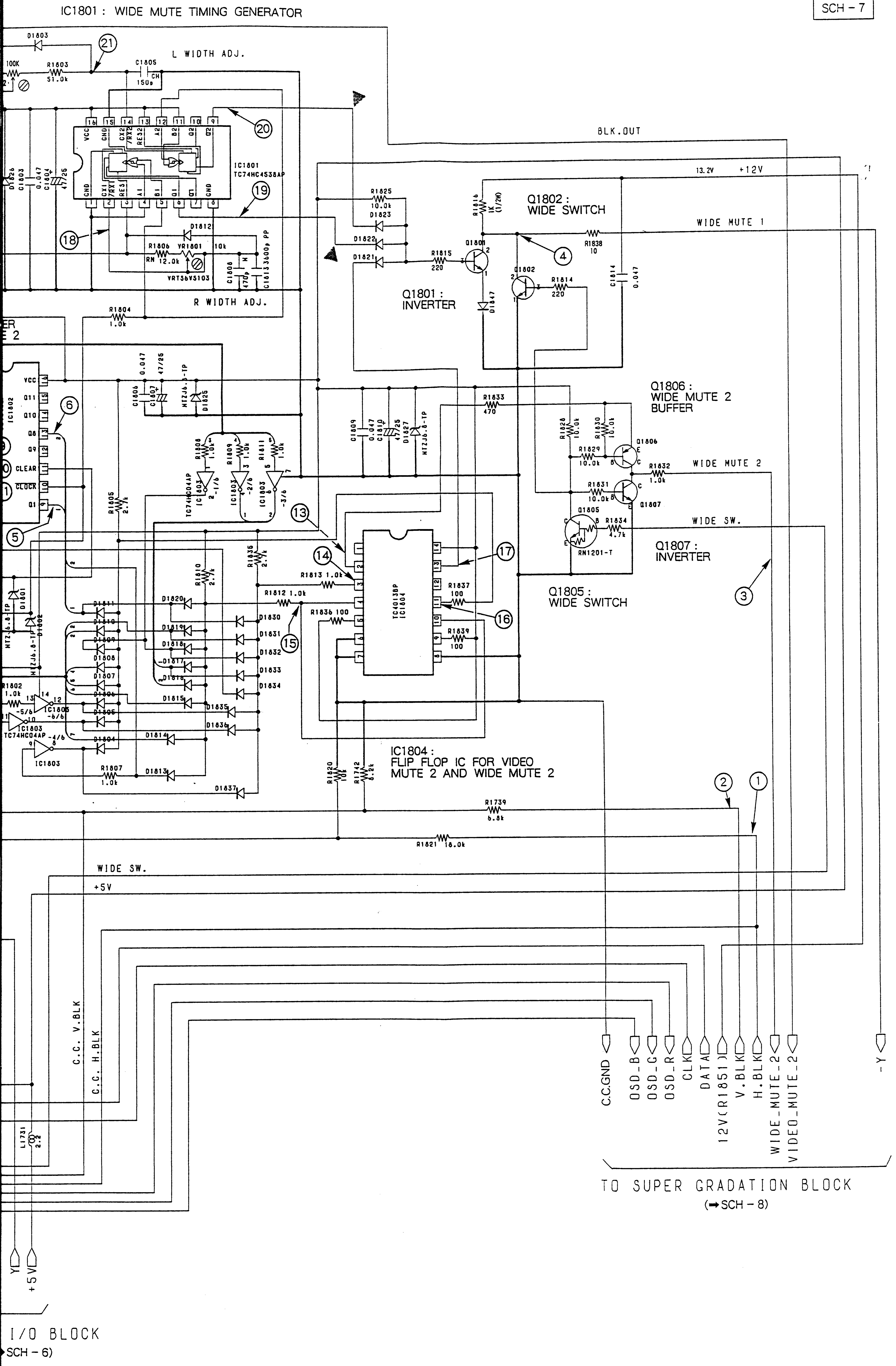
2SA933S
2SC1740S
HSS104-02-TP

AV I/O ASSY (AWZ5985 : SD-P5185-K AND 83 FAMILY)
(AWZ5986 : PRO-98)

- CCD AND SUB U-COM BLOCK


IC1801 :
D1803
100K
R1803
51.0k
VR1812
HTZJ6.8-TP
D1826
C1803
0.047
C1804
47/25
VCC
GND
⑱
IC1802 :
H PULSE COUNTER
FOR VIDEO MUTE 2
⑦ ⑧ ⑥ ⑨ ⑩ ⑪ ⑫ ⑤
Q12 Q6 Q5 Q7 Q4 Q3 Q2 GND
VCC Q11 Q10 Q8 Q9 CLEAR CLOCK Q1
TC4040BP
IC1802
5V
C1849
27p
R1824
1.8k
Q1731 : BUFFER
Q1731
IC1731 :
CLOSED CAPTION
SIGNAL DETECTOR
AND CHARACTER
DECODER
OSD B
OSD G
OSD R
D1754 D1755 D1756 D1753
D1733 D1734 D1736 D1732
RA9T103J
R1761
10.0k
R1762
Q1735 :
RESET
1.0k
R1765
X1731
AX3S1062
Q1735
XDC143E5-T
HTZJ6.8-TP
D1824
0.047
47/25
C1801
C1802
D1801
D1802
R1802
1.0k
R1801
1.0k
IC1805
IC1803
TC74HC04AP
IC1803 :
INVERTER IC
R1737 4.7k
R1741 R1744 R1746 R1748
220
D1745
R1754 1.0k
C1741 1000p
D1747
C1737 0.047
C1736 100/10
5V 0V
4.9V 0V
5V 0V
P62/R P63/G P64/B OUT P20/PWM0 P21/PWM P22/PWM2 P23/PWM3 P04 P05 P06 P07 P10 P11 P12 P13 P14 P15 P16 P17 P30 P31 RESET OSC1 OSC2 VCC
IC1731
PD5300A
HSYNC VSYNC P40/HXR/AD1 P41/INT2/HXG/AD2 P42/HXB/TIN2 P43/HXOUT/TIN3 P00 P01 P02 P03 P24/PWM4 P25/PWM5 P26 P27 P44/INT1 P45/SIN P46/SCLK P47/SOUT VHOLD VIN VOUT CVIN CNVSS XIN XOUT VSS
52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
1.5V 1.5V
C1734 0.1/50
X1732
AX3S1015
R1740 R1743 R1745 R1747 R1749 R1750
2.2k 1.8k
R1751 R1753 R1752 R1764
C1733 1000p
D1731 R1737 10.0k
R1738 10.0k
D1733 D1735 D1737 D1739 D1740
D1748 D1749 D1750 D1751
RA9T103J
R1763
D1741 D1743 D1742
R1755 470
C1739 0.1/50
2.5V
C1738 560p
D1746 D1744
R1766 1.0k
C1740 1000p
D1752
R1766 2.2k
5.1V
DATA
CLK
C.C. V.BLK
C.C. H.BLK
L1731 2.2
W
+5
① ② ③ ④ ⑤ ⑥ ⑦ ⑧
J1002
KK-1021-8
OSD R
OSD G
OSD B
BLK
C.C.ENB
C.C.RESET
WIDE SW.
GND
A4
PINP RESET
Y
+5V
TO AV I/O BLOCK
(→SCH - 6)
U-COM・TUNER ASSY
(2/4) U5
(→SCH - 3)

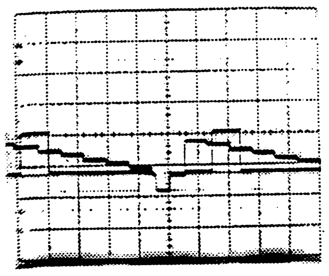
SCH-7 AV I/O ASSY (2/3)


IC1801 : WIDE MUTE TIMING GENERATOR
D1803
21
100K
R1803
51.0k
C1805
150p
CH
L WIDTH ADJ.
20
IC1801
TC74HC4538AP
VCC
GND
CX2 /RX2
RE32
A2
B2
Q2
Q2
GND
CX1 /RX1
RES1
A1
B1
Q1
Q1
19
18
D1826
C1803
0.047
C1804
47/25
D1812
R1806
RN 12.0k
VR1801
10k
VRT36VS103
C1808
470p
C1813 3600p PP
R WIDTH ADJ.
R1804
1.0k
BLK.OUT
13.2V
+12V
R1825
10.0k
D1823
D1822
D1821
R1816
1K (1/2W)
Q1802 :
WIDE SWITCH
WIDE MUTE 1
R1838
10
4
Q1801
R1815
220
Q1801 :
INVERTER
D1847
Q1802
R1814
220
C1814
0.047
IC1802
VCC
Q11
Q10
Q8
Q9
CLEAR
CLOCK
Q1
6
5
C1806
0.047
C1807
47/25
HTZJ6.3-TP
D1825
R1808
1.0k
R1809
1.0k
R1811
1.0k
TC74HC04AP
IC1803
-1/6
-2/6
-3/6
R1805
2.2k
13
C1809
0.047
C1810
47/25
D1827
HTZJ6.8-TP
R1833
470
Q1806 :
WIDE MUTE 2
BUFFER
R1828
10.0k
R1830
10.0k
R1829
10.0k
Q1806
R1832
1.0k
WIDE MUTE 2
R1831
10.0k
Q1807
Q1805
R1834
4.7k
WIDE SW.
RN1201-T
Q1807 :
INVERTER
Q1805 :
WIDE SWITCH
3
R1836
2.2k
14
R1813 1.0k
R1812 1.0k
R1836 100
TC4013BP
IC1804
R1837
100
R1839
100
17
16
15
R1810
2.2k
D1820
D1819
D1818
D1817
D1816
D1815
D1830
D1831
D1832
D1833
D1834
D1835
D1836
D1837
D1811
D1810
D1809
D1808
D1807
D1806
D1805
D1804
D1814
D1813
D1801
D1802
HTZJ6.8-TP
R1802
1.0k
IC1803
-4/6
-5/6
-6/6
TC74HC04AP
R1807
1.0k
IC1804 :
FLIP FLOP IC FOR VIDEO
MUTE 2 AND WIDE MUTE 2
R1820
10k
R1712
8.2k
R1739
6.8k
R1821 18.0k
2
1
WIDE SW.
+5V
C.C. V.BLK
C.C. H.BLK
L1731
2.2
C.C.GND
OSD_B
OSD_G
OSD_R
CLK
DATA
12V(R1851)
V.BLK
H.BLK
WIDE_MUTE_2
VIDEO_MUTE_2
-Y
TO SUPER GRADATION BLOCK
(→SCH-8)
Y
+5V
I/O BLOCK
(→SCH-6)

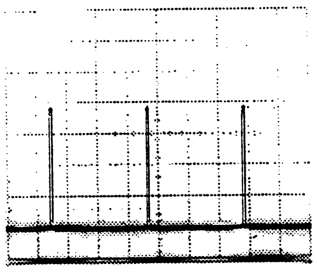
• Waveforms at AV I/O ASSY (SUPER GRADATION BLOCK)

- Input signal : Color bar
- Picture quality : Standard
- DC range

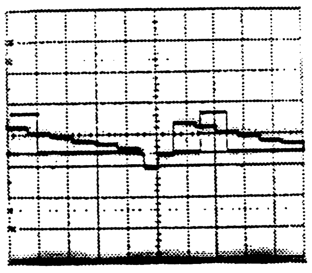
① Q1853 Base
V range : 1V/div.
H range : 10 μsec/div.



② Q1864 Collector
V range : 2V/div.
H range : 20 μsec/div.

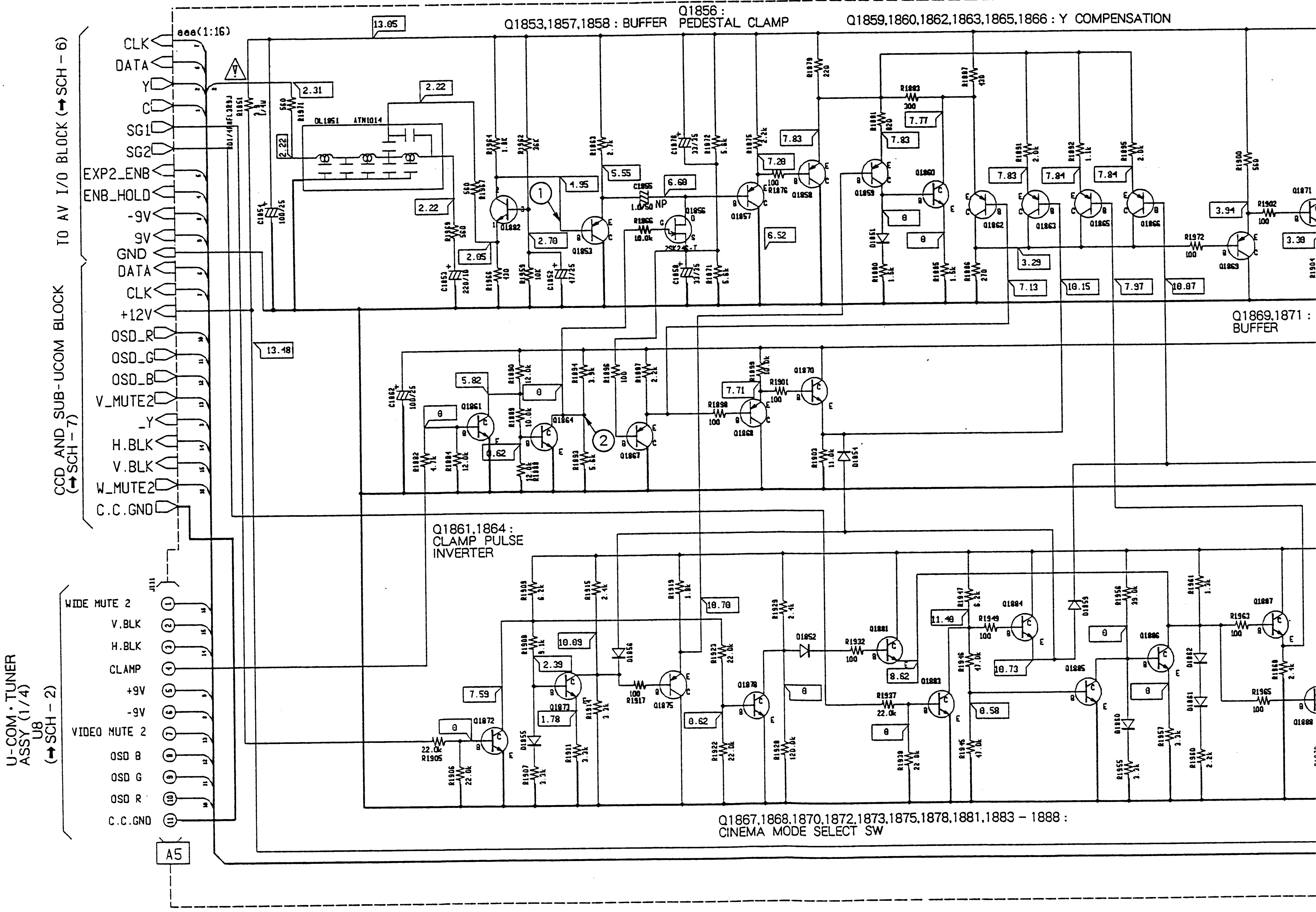


③ Q1871 Emitter
V range : 1V/div.
H range : 10 μsec/div.



7.8 AV I/O ASSY (3/3)

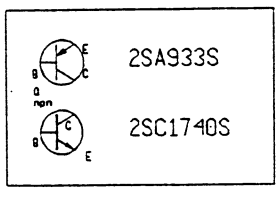
AV I/O ASSY (AWZ5985 : SD-P5185-K AND 83 FAMILY)
(AWZ5986 : PRO-98)
• SUPER GRADATION BLOCK


Q1853,1857,1858 : BUFFER
Q1856 : PEDESTAL CLAMP
Q1859,1860,1862,1863,1865,1866 : Y COMPENSATION
Q1869,1871 : BUFFER
Q1861,1864 : CLAMP PULSE INVERTER
Q1867,1868,1870,1872,1873,1875,1878,1881,1883 – 1888 : CINEMA MODE SELECT SW
TO AV I/O BLOCK (↑SCH – 6)
CCD AND SUB-UCOM BLOCK (↑SCH – 7)
U-COM・TUNER ASSY (1/4) U8 (↑SCH – 2)
CLK
DATA
Y
C
SG1
SG2
EXP2_ENB
ENB_HOLD
-9V
9V
GND
DATA
CLK
+12V
OSD_R
OSD_G
OSD_B
V_MUTE2
_Y
H.BLK
V.BLK
W_MUTE2
C.C.GND
WIDE MUTE 2
V.BLK
H.BLK
CLAMP
+9V
-9V
VIDEO MUTE 2
OSD B
OSD G
OSD R
C.C.GND
A5
DL1851 ATN1014
2SK246-T
13.05
2.31
2.22
2.22
5.55
6.69
4.95
2.70
2.05
2.22
7.83
7.28
7.83
7.77
6.52
7.83
7.84
7.84
3.29
7.13
10.15
7.97
10.07
3.94
3.39
13.48
5.82
7.71
0.62
10.70
10.09
2.39
7.59
1.78
8.62
11.40
10.73
0.58
0.62

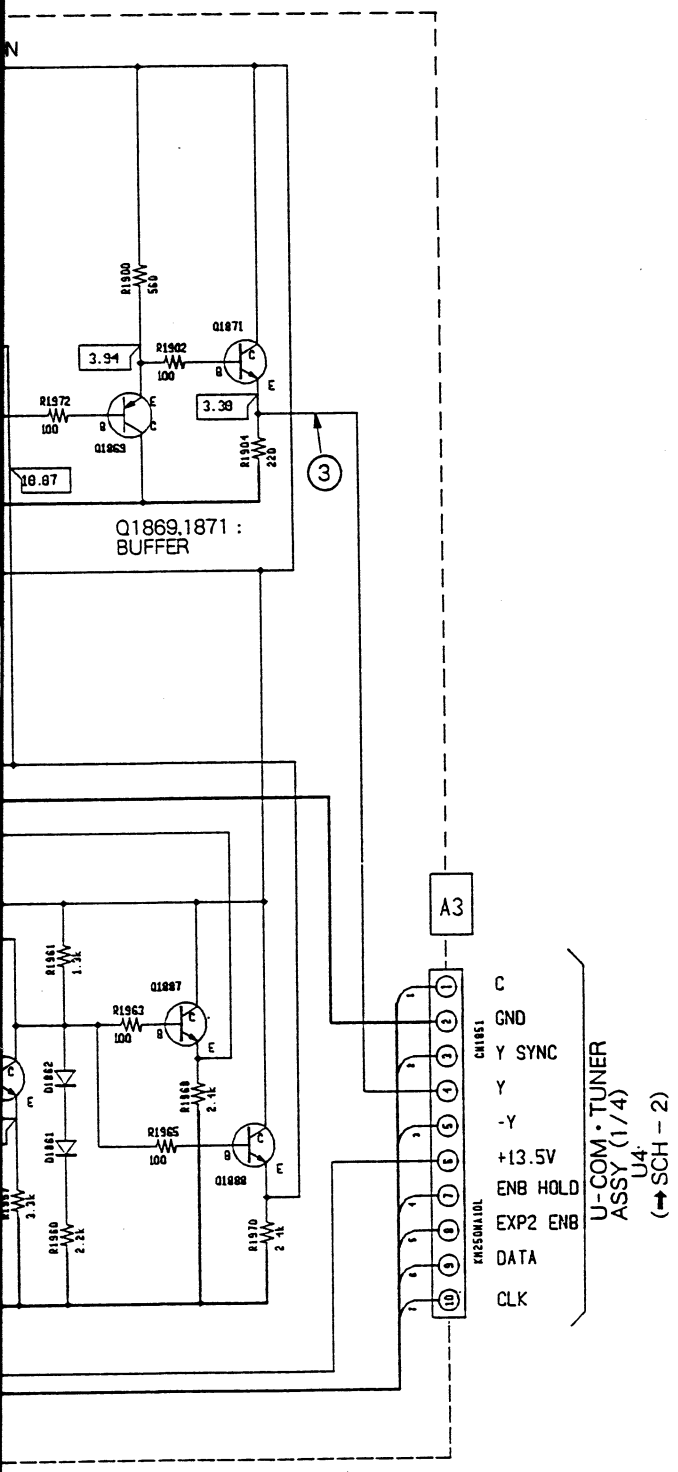
Note: Diode HSS104-02 unless otherwise noted.
Resister indicated in Ω ,1/4W,1/8W +5%tolerance
unless otherwise noted. k:k Ω . M:M Ω .
Capacitor indicated in Capacity(μ F)/Voltage(V)
unless otherwise noted. p:pF.
Indication without voltage is 50V except Electrolytic capacitor.

L=0V,H=+5V

	CINEMA MODE		
	OFF(STD)	CINEMA1	CINEMA2
SG1	L	L	H
SG2	L	H	H


2SA933S
2SC1740S

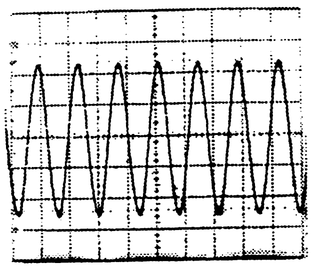
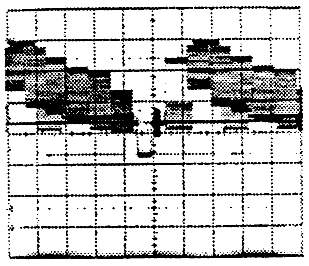
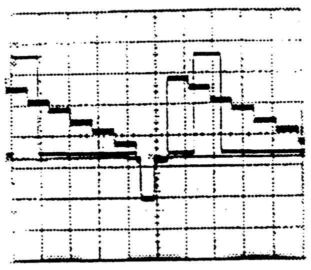
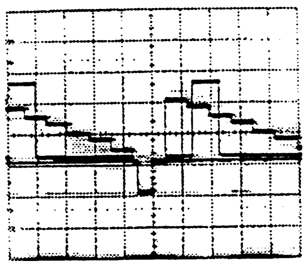
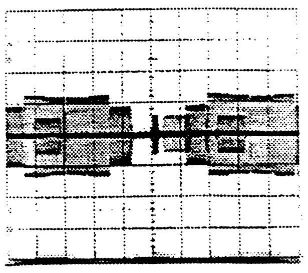
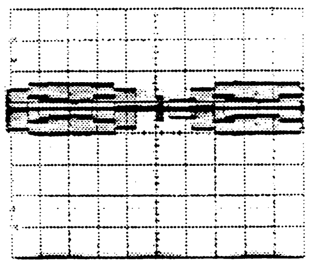
SCH – 8


N
R1900
560
Q1871
3.94
R1902
100
R1972
100
3.38
Q1863
R1904
220
18.87
③
Q1869,1871 :
BUFFER
A3
R1961
1.3k
Q1887
R1963
100
D1862
D1861
R1968
2.1k
R1965
100
Q1888
R1960
2.2k
R1970
2.1k
CN1951
KM250NA10L
C
GND
Y SYNC
Y
-Y
+13.5V
ENB HOLD
EXP2 ENB
DATA
CLK
U-COM・TUNER
ASSY (1/4)
U4
(→SCH – 2)

A933S

C1740S

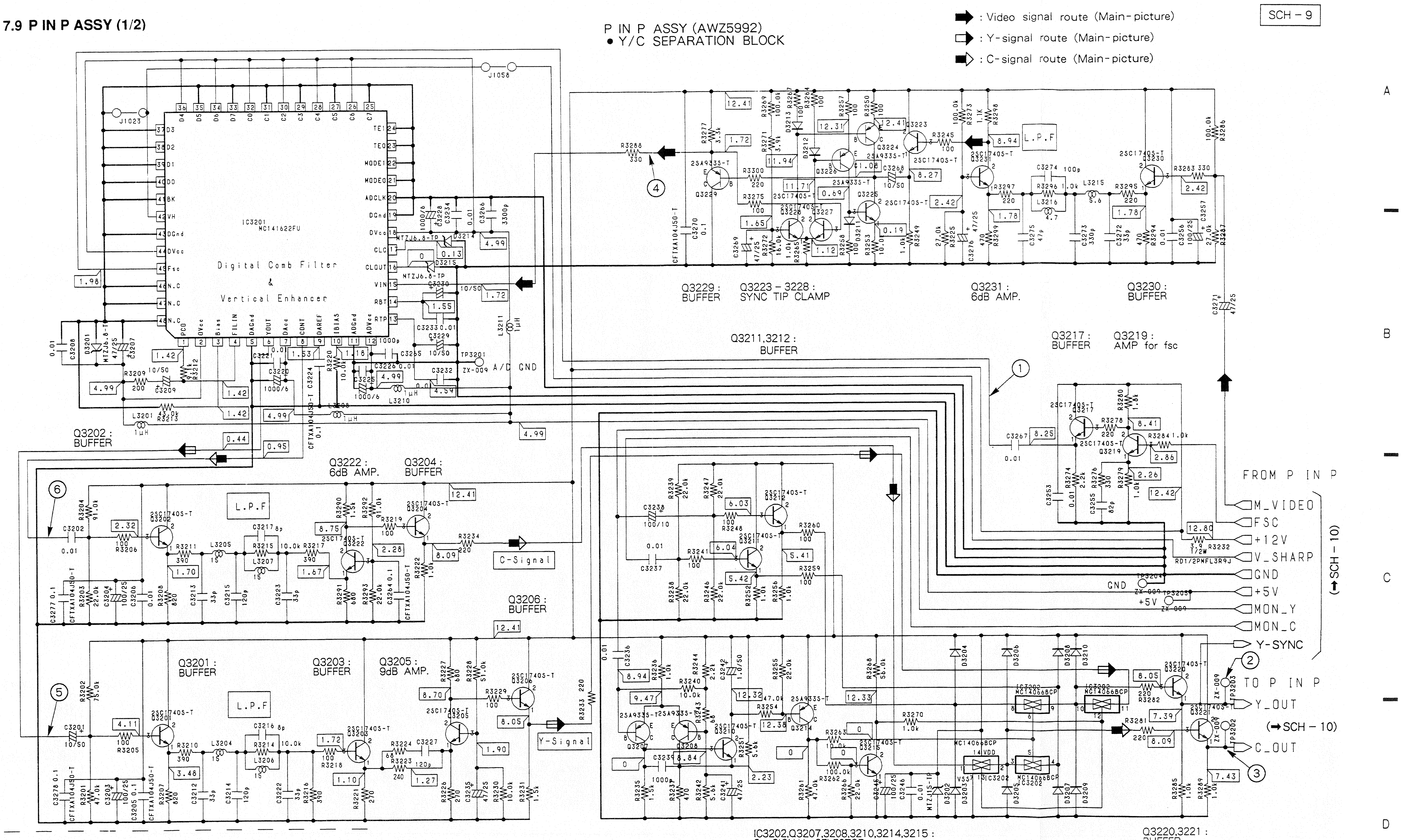
- **Waveformes at PINP ASSY (Y/C SEPARATION BLOCK)**
- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

① **IC3201 pin 45** V range : 500mV/div. H range : 0.2 μsec/div. 	④ **Q3229 Emitter** V range : 500mV/div. H range : 10 μsec/div. 
② **TP3203 (Y OUT)** V range : 200mV/div. H range : 10 μsec/div. (AC range) 	⑤ **IC3201 pin 6** V range : 200mV/div. H range : 10 μsec/div. 
③ **TP3202 (C OUT)** V range : 200mV/div. H range : 10 μsec/div. (AC range) 	⑥ **IC3201 pin 8** V range : 200mV/div. H range : 10 μsec/div. 

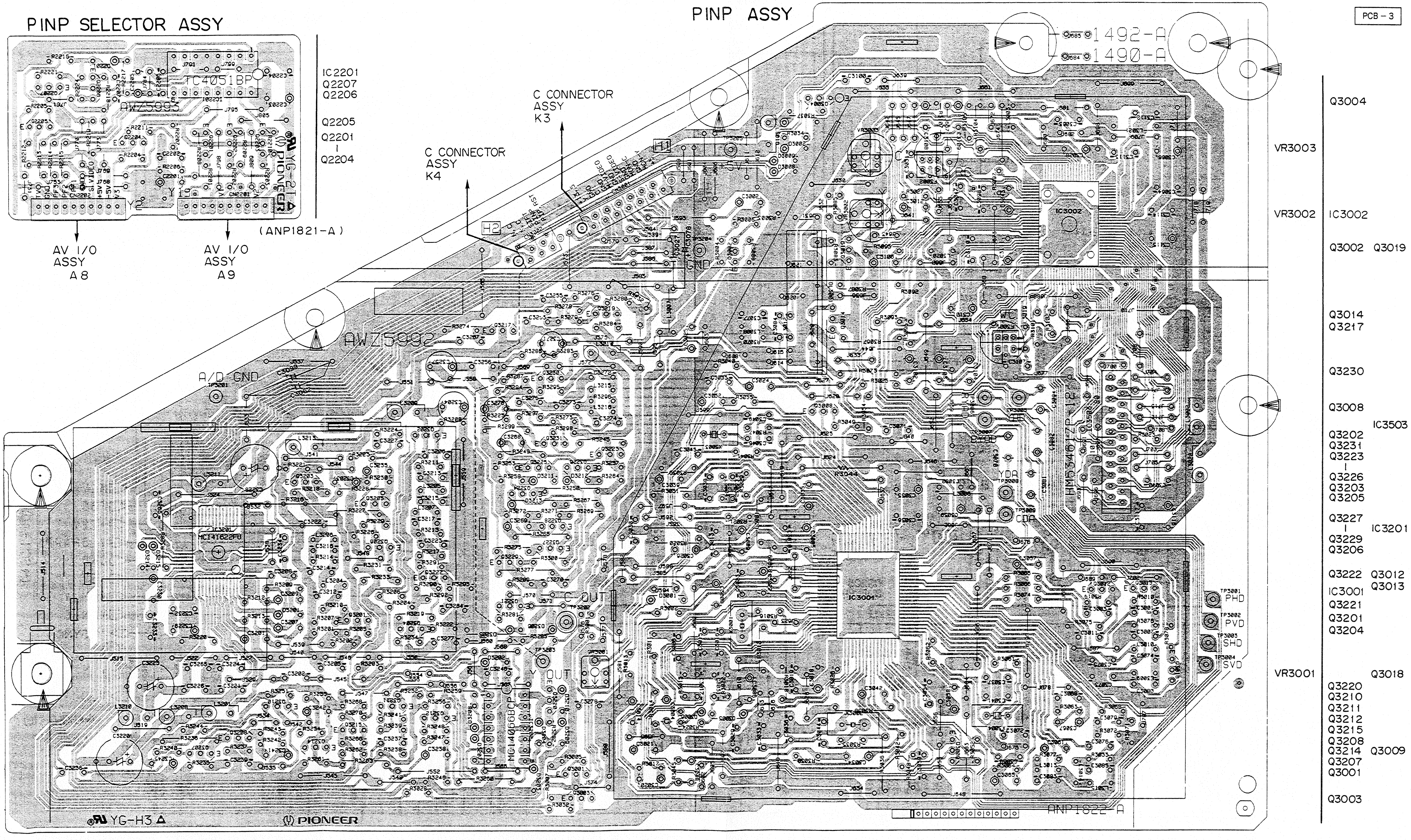
AV I/O ASSY
(3/3)

SCH-8

7.9 P IN P ASSY (1/2)


P IN P ASSY (AWZ5992)
• Y/C SEPARATION BLOCK
: Video signal route (Main-picture)
: Y-signal route (Main-picture)
: C-signal route (Main-picture)
IC3201
MC141622FU
Digital Comb Filter
&
Vertical Enhancer
J1023
J1058
TP3201
ZX-009 A/D GND
Q3202 : BUFFER
Q3222 : 6dB AMP.
Q3204 : BUFFER
L.P.F
C-Signal
Q3206 : BUFFER
Q3201 : BUFFER
Q3203 : BUFFER
Q3205 : 9dB AMP.
Y-Signal
Q3229 : BUFFER
Q3223 – 3228 : SYNC TIP CLAMP
Q3231 : 6dB AMP.
Q3230 : BUFFER
Q3211,3212 : BUFFER
Q3217 : BUFFER
Q3219 : AMP for fsc
FROM P IN P
M_VIDEO
FSC
+12V
V_SHARP
GND
+5V
MON_Y
MON_C
Y-SYNC
(→SCH－10)
TO P IN P
Y_OUT
C_OUT
(→SCH－10)
IC3202,Q3207,3208,3210,3214,3215 : S-SIGNAL SELECTOR
Q3220,3221 : BUFFER
① ② ③ ④ ⑤ ⑥
1 2 3 4 5 6
A B C D

Note: Diode HSS104-02 unless otherwise noted.

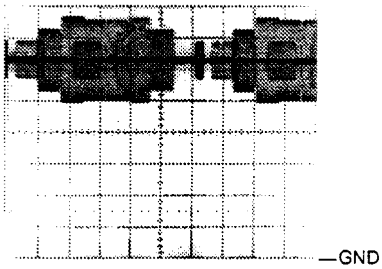

1
2
3
4
5
6
A
B
C
D
PINP SELECTOR ASSY
TC4051BP
AWZ5993
YG-2I
PIONEER
IC2201
Q2207
Q2206
Q2205
Q2201
I
Q2204
(ANP1821-A)
AV I/O
ASSY
A8
AV I/O
ASSY
A9
PINP ASSY
C CONNECTOR
ASSY
K3
C CONNECTOR
ASSY
K4
H1
H2
1492-A
1490-A
PCB – 3
GND
AWZ5992
A/D GND
MC14622P0
IC3001
C OUT
Y OUT
TP3001 PHD
TP3002 PVD
TP3003 SHD
TP3004 SVD
YG-H3
PIONEER
ANP1822-A
Q3004
VR3003
VR3002
IC3002
Q3002
Q3019
Q3014
Q3217
Q3230
Q3008
IC3503
Q3202
Q3231
Q3223
I
Q3226
Q3203
Q3205
Q3227
I
Q3229
Q3206
IC3201
Q3222
Q3012
Q3013
IC3001
Q3221
Q3201
Q3204
VR3001
Q3018
Q3220
Q3210
Q3211
Q3212
Q3215
Q3208
Q3214
Q3009
Q3207
Q3001
Q3003

- This diagram is viewed from the mounted parts side.

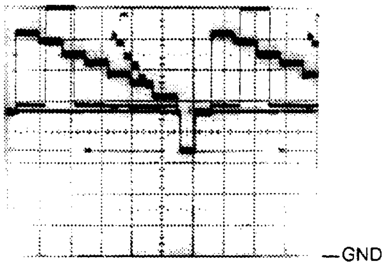
• Waveformes at P IN P ASSY (P IN P BLOCK)

- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

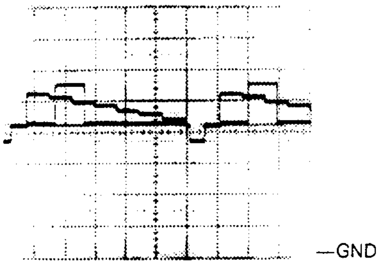
① **IC3001 pin 55**
V range : 0.5V/div.
H range : 10 μsec/div.



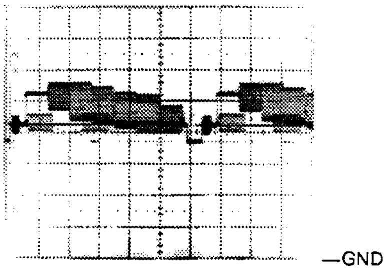
② **Q3003 Base**
V range : 0.5V/div.
H range : 10 μsec/div.



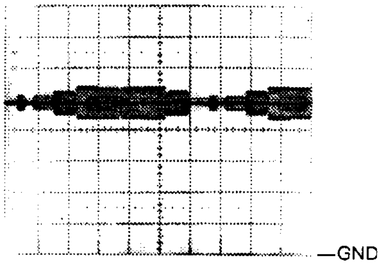
③ **IC3001 pin 65**
V range : 0.5V/div.
H range : 10 μsec/div.



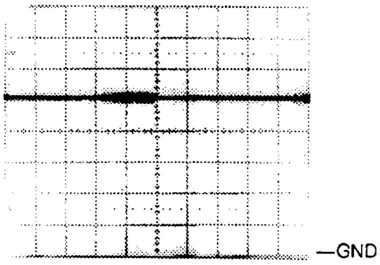
④ **IC3001 pin 66**
V range : 0.5V/div.
H range : 10 μsec/div.



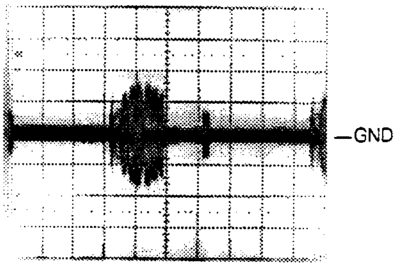
⑤ **IC3001 pin 68**
V range : 0.5V/div.
H range : 10 μsec/div.



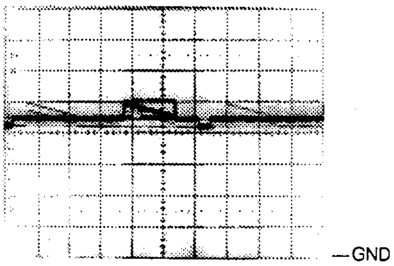
⑥ – 1 **TP3009 (CDA)**
V range : 0.5V/div.
H range : 10 μsec/div.



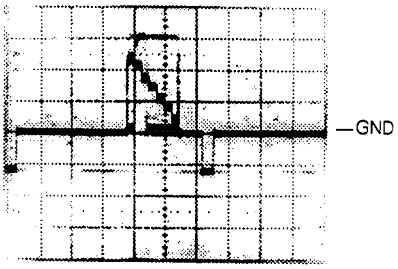
⑥ – 2 **TP3009 (CDA))**
V range : 50mV/div.
H range : 10 μsec/div.
(AC range)



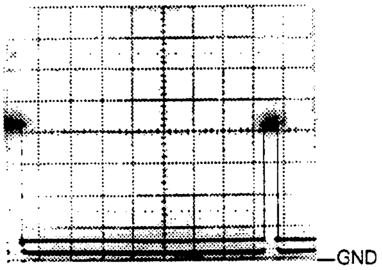
⑦ **TP3008 (YDA)**
V range : 0.5V/div.
H range : 10 μsec/div.



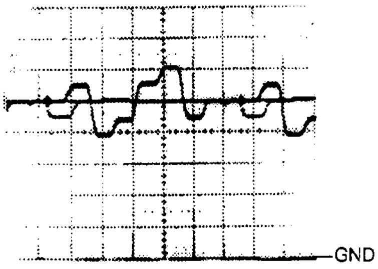
⑧ **TP3008 (YDA)**
V range : 0.1V/div.
H range : 10 μsec/div.
(AC range)



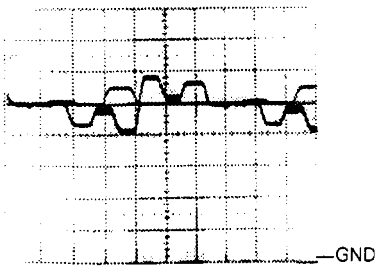
⑨ **TP3002 (PVD)**
V range : 1V/div.
H range : 2msec/div.



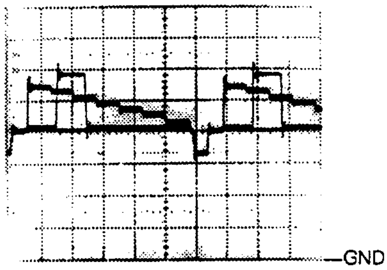
⑩ **TP3006 (RYAD)**
V range : 0.5V/div.
H range : 10 μsec/div.



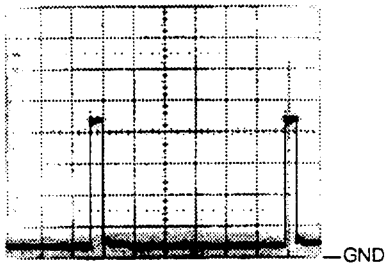
⑪ **TP3007 (BYAD)**
V range : 0.5V/div.
H range : 10 μsec/div.



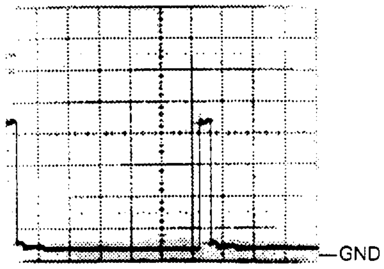
⑫ **TP3005 (YAD)**
V range : 0.5V/div.
H range : 10 μsec/div.



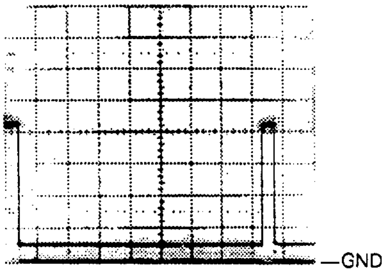
⑬ **TP3001 (PHD)**
V range : 1V/div.
H range : 10 μsec/div.



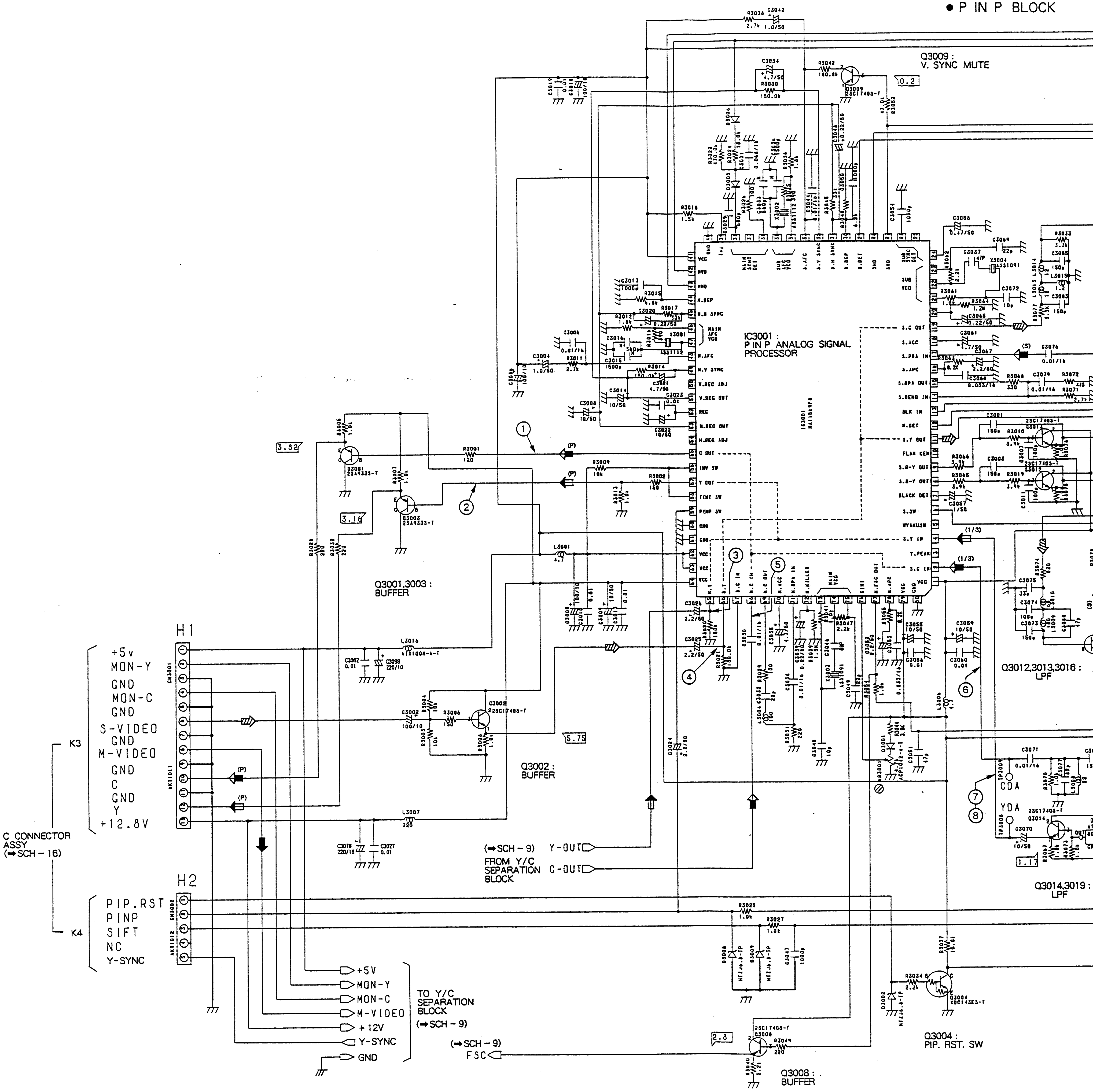
⑭ **TP3003 (SHD)**
V range : 1V/div.
H range : 10 μsec/div.



⑮ **TP3004 (SVD)**
V range : 1V/div.
H range : 2msec/div.



7.10 P IN P ASSY (2/2) AND P IN P SELECTOR ASSY


P IN P ASSY (AWZ59
● P IN P BLOCK
Q3009 :
V. SYNC MUTE
IC3001 :
P IN P ANALOG SIGNAL
PROCESSOR
Q3001,3003 :
BUFFER
Q3002 :
BUFFER
Q3012,3013,3016 :
LPF
Q3014,3019 :
LPF
Q3004 :
PIP. RST. SW
Q3008 :
BUFFER
H1
+5v
MON-Y
GND
MON-C
GND
S-VIDEO
GND
M-VIDEO
GND
C
GND
Y
+12.8V
CN3001
AKT1011
K3
C CONNECTOR
ASSY
(➡SCH－16)
H2
PIP.RST
PINP
SIFT
NC
Y-SYNC
CN3002
AKT1012
K4
(➡SCH－9) Y-OUT
FROM Y/C
SEPARATION C-OUT
BLOCK
+5V
MON-Y
MON-C
M-VIDEO
+12V
Y-SYNC
GND
TO Y/C
SEPARATION
BLOCK
(➡SCH－9)
(➡SCH－9)
FSC
CDA
YDA
①
②
③
④
⑤
⑥
⑦
⑧
3.82
3.16
5.75
0.2
2.8
1.17
L3016
ATX1008-A-T
C3062
0.01
C3099
220/10
L3007
220
C3078
220/16
C3027
0.01
L3001
4.7
C3002
100/10
R3004
10k
R3003
10k
R3006
150
Q3002
2SC1740S-T
R3008
1.0k
C3026
2.2/50
C3025
2.2/50
R3020
150k
R3021
150.0k
C3024
2.2/50
R3028
220
R3032
220
R3001
120
R3009
10k
R3002
150
Q3001
2SA933S-T
Q3003
2SA933S-T
D3008
MTZJ6.8-TP
R3025
1.0k
R3027
1.0k
R3034
2.2k
Q3004
XDC143ES-T
R3049
220
Q3008
2SC1740S-T
R3036
2.7k
C3042
1.0/50
R3042
180.0k
Q3009
2SC1740S-T
C3034
4.7/50
R3030
150.0k
R3018
1.5k

Note : Diode HSS104-02 unless otherwise noted.

IC3001 (HA11569FS)

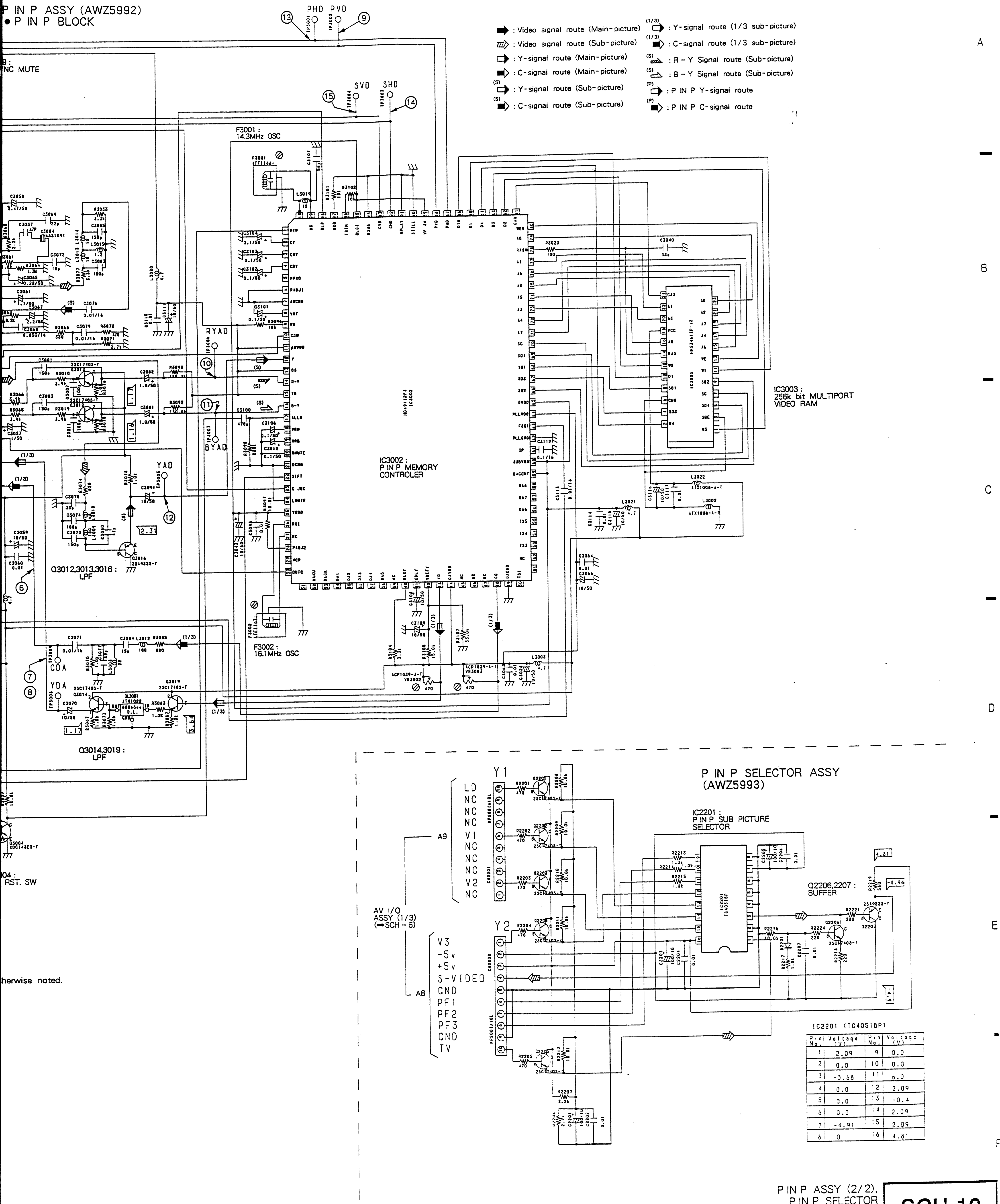
Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	4.96	21	3.68	41	4.97	61	0
2	2.61	22	2.52	42	0	62	4.98
3	2.3	23	2.52	43	0.84	63	4.98
4	2.32	24	0.43	44	0.49	64	12.51
5	0	25	2.21	45	1.79	65	2.36
6	0	26	2.35	46	2.78	66	2.35
7	3.05	27	0.48	47	2.1	67	0
8	1.96	28	0.85	48	2.31	68	2.48
9	1.95	29	0	49	1.89	69	1.78
10	2.67	30	0.54	50	2.19	70	2.81
11	1.66	31	1.79	51	2.23	71	2.87
12	4.25	32	1.89	52	3.72	72	2.12
13	0(0.97)	33	2.3	53	2.13	73	3.78
14	2.14	34	2.77	54	2.11	74	2.56
15	2.4	35	2.11	55	3.15	75	2.55
16	2.83	36	0	56	3.32	76	1.88
17	2.86	37	2.21	57	2.84	77	3.48
18	2.74	38	2.34	58	3.32	78	2.81
19	1.62	39	0.65	59	0	79	4.96
20	2.1	40	0	60	0	80	0

Note:DC voltage(V) at color bar signal input

IC3002 (HD49412FS)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0 (5.03)	21	0	41	2.82	61	2.32	81	—
2	2.04	22	0	42	3.44	62	0	82	—
3	2.2	23	0	43	5.0 (4.41)	63	2.32	83	—
4	2.18	24	0.95	44	5.01	64	5.01	84	—
5	0	25	4.92	45	—	65	5.02	85	—
6	0.59	26	2.56	46	—	66	—	86	—
7	0.86	27	2.36	47	—	67	—	87	0.84
8	5.02 (2.97)	28	4.92	48	5.02 (4.12)	68	—	88	0.04
9	4.98 (1,27)	29	0	49	0	69	—	89	4.99
10	4.21	30	0.02	50	—	70	—	90	0
11	4.95	31	—	51	—	71	—	91	0
12	5.12 (2.35)	32	—	52	—	72	—	92	0.84
13	4.95	33	—	53	—	73	—	93	0.48
14	4.89 (2.51)	34	—	54	—	74	—	94	0
15	4.95	35	—	55	—	75	—	95	4.96
16	4.9 (2.51)	36	—	56	—	76	—	96	4.96
17	0.31	37	—	57	—	77	—	97	0
18	5.12 (2.49)	38	—	58	—	78	—	98	0.99
19	5.12 (2.02)	39	—	59	4.99	79	—	99	2.38
20	0	40	3.4	60	4.99	80	—	100	2.38

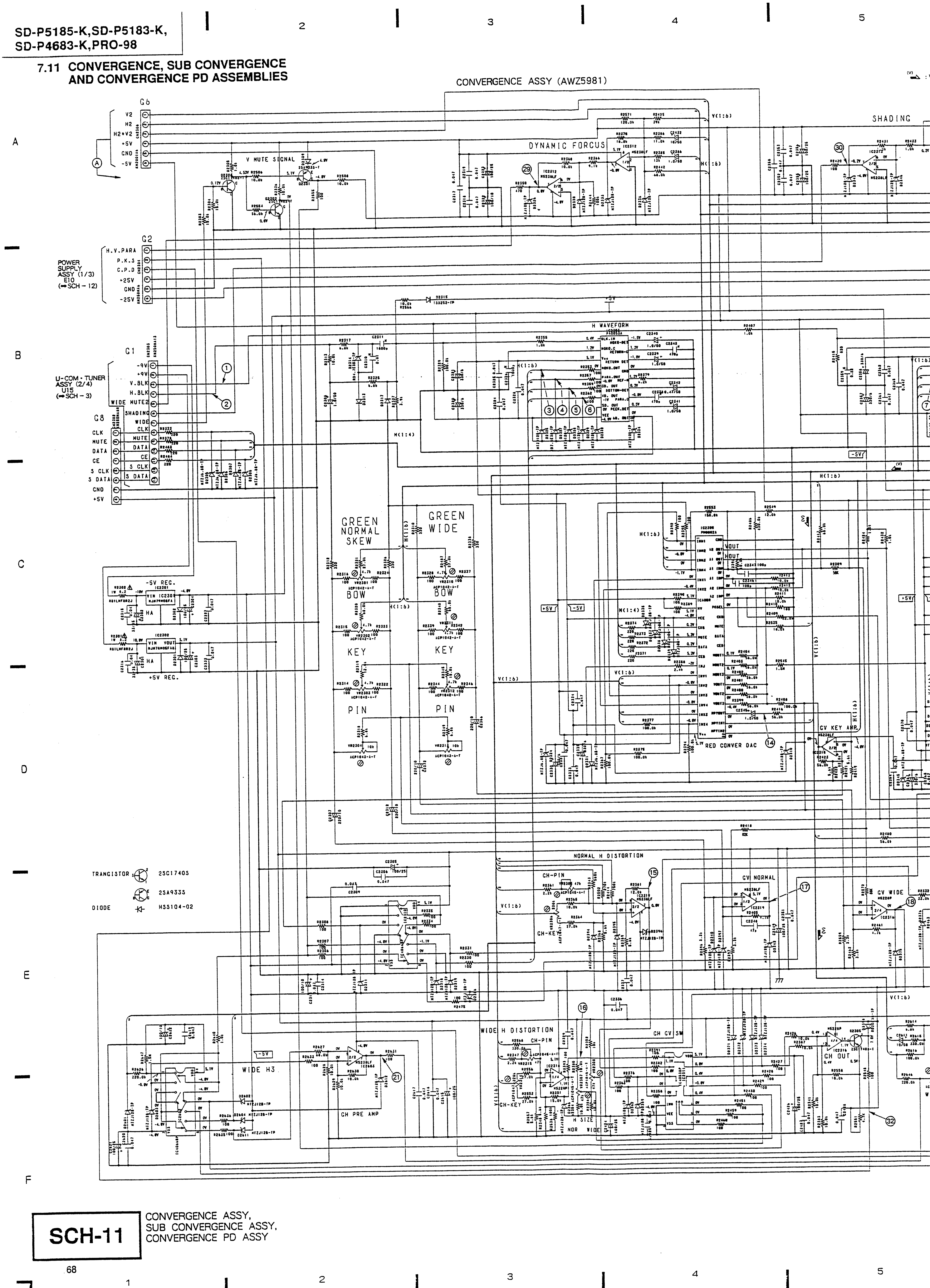
Note:DC voltage(V) at color bar signal input and PINP OFF
Value in () DC voltage at PINP ON


P IN P ASSY (AWZ5992)
● P IN P BLOCK
: Video signal route (Main-picture)
: Video signal route (Sub-picture)
: Y-signal route (Main-picture)
: C-signal route (Main-picture)
(S) : Y-signal route (Sub-picture)
(S) : C-signal route (Sub-picture)
(1/3) : Y-signal route (1/3 sub-picture)
(1/3) : C-signal route (1/3 sub-picture)
(S) : R – Y Signal route (Sub-picture)
(S) : B – Y Signal route (Sub-picture)
(P) : P IN P Y-signal route
(P) : P IN P C-signal route
PHD PVD
SVD SHD
NC MUTE
F3001 : 14.3MHz OSC
IC3002 : P IN P MEMORY CONTROLER
IC3003 : 256k bit MULTIPORT VIDEO RAM
F3002 : 16.1MHz OSC
RYAD
BYAD
YAD
CDA
YDA
Q3012,3013,3016 : LPF
Q3014,3019 : LPF
RST. SW
A
B
C
D
E
P IN P SELECTOR ASSY (AWZ5993)
IC2201 : P IN P SUB PICTURE SELECTOR
Q2206,2207 : BUFFER
Y1
LD
NC
NC
NC
V1
NC
NC
NC
V2
NC
A9
AV I/O ASSY (1/3) (➡SCH – 6)
A8
Y2
V3
-5v
+5v
S-VIDEO
GND
PF1
PF2
PF3
GND
TV
herwise noted.

IC2201 (TC4051BP)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	2.09	9	0.0
2	0.0	10	0.0
3	-0.68	11	6.0
4	0.0	12	2.09
5	0.0	13	-0.4
6	0.0	14	2.09
7	-4.91	15	2.09
8	0	16	4.81

7.11 CONVERGENCE, SUB CONVERGENCE AND CONVERGENCE PD ASSEMBLIES

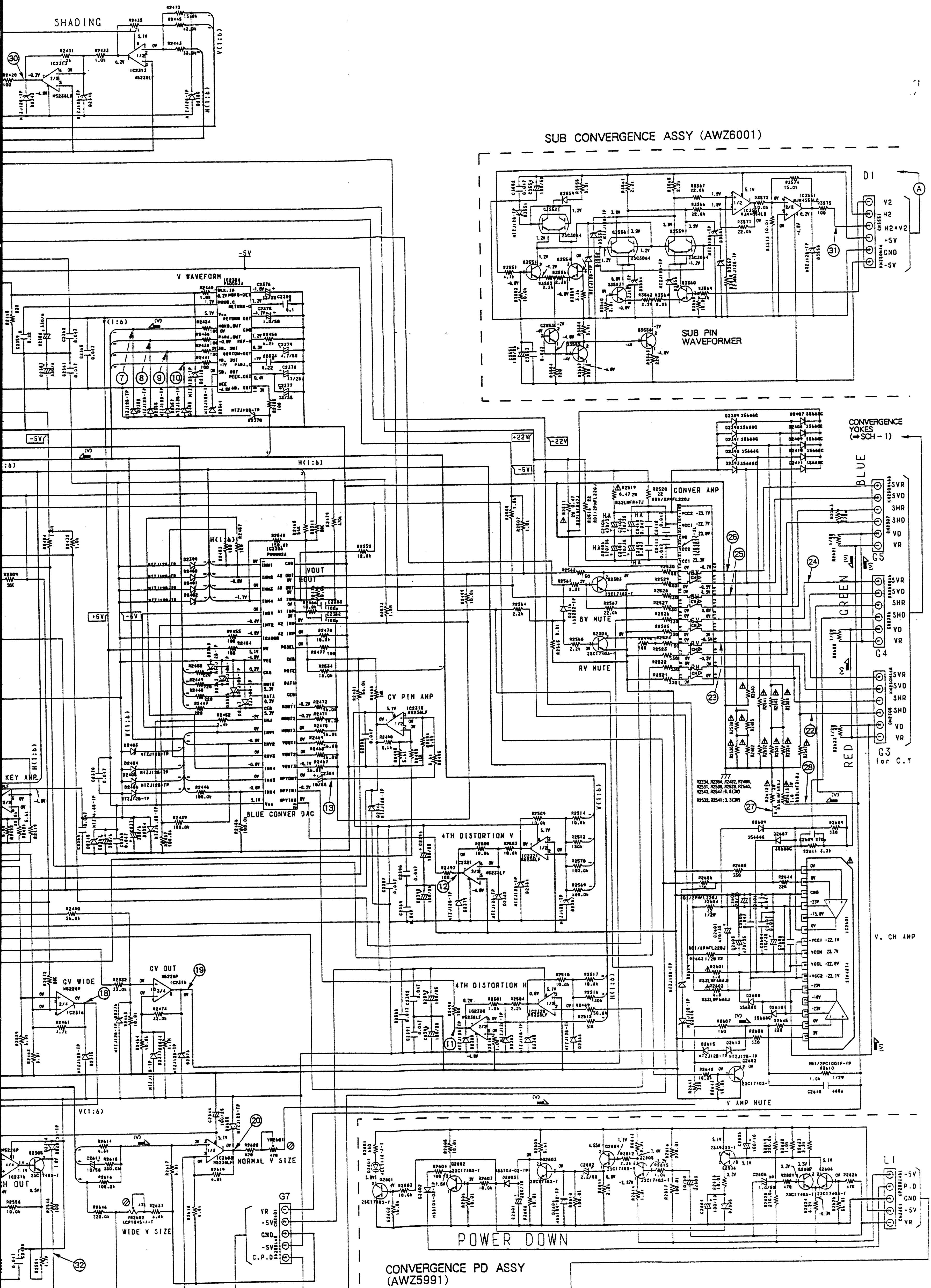

1
2
3
4
5
A
B
C
D
E
F
CONVERGENCE ASSY (AWZ5981)
G6
V2
H2
H2+V2
+5V
GND
-5V
Ⓐ
V MUTE SIGNAL
DYNAMIC FORCUS
SHADING
G2
H.V.PARA
P.K.S
C.P.D
+25V
GND
-25V
POWER SUPPLY ASSY (1/3) E10 (⇒SCH-12)
G1
-9V
+9V
V.BLK
H.BLK
WIDE MUTE2
SHADING
WIDE
U-COM・TUNER ASSY (2/4) U15 (⇒SCH-3)
G8
CLK
MUTE
DATA
CE
S CLK
S DATA
GND
+5V
H WAVEFORM
H(1:6)
H(1:4)
V(1:6)
GREEN NORMAL SKEW
GREEN WIDE
BOW
KEY
PIN
-5V REG.
+5V REG.
HA
RED CONVER DAC
CV KEY AMP.
NORMAL H DISTORTION
CH-PIN
CH-KEY
GV NORMAL
GV WIDE
WIDE H DISTORTION
CH GV SW
CH OUT
H SIZE
NOR WIDE
WIDE H3
CH PRE AMP
TRANCISTOR 2SC1740S
2SA933S
DIODE HSS104-02

SCH-11

CONVERGENCE ASSY,
SUB CONVERGENCE ASSY,
CONVERGENCE PD ASSY

SCH – 11

(V) : V. Deflection signal route



5
6
7
8
9
B
C
D
E
F
SHADING
V WAVEFORM
SUB CONVERGENCE ASSY (AWZ6001)
D1
V2
H2
H2+V2
+5V
GND
-5V
SUB PIN WAVEFORMER
-5V
CONVERGENCE YOKES (→SCH – 1)
CONVER AMP
BLUE
GREEN
RED
SVR
SVO
SHR
SHO
VO
VR
G5
G4
G3 for C.Y
BV MUTE
RV MUTE
+22V
-22V
H(1:6)
V(1:6)
BLUE CONVER DAC
CV PIN AMP
4TH DISTORTION V
4TH DISTORTION H
V. CH AMP
V AMP MUTE
CV WIDE
CV OUT
KEY AMP
H OUT
NORMAL V SIZE
WIDE V SIZE
G7
VR
+5V
GND
-5V
C.P.D.
POWER DOWN
L1
-5V
P.D
GND
+5V
VR
CONVERGENCE PD ASSY (AWZ5991)

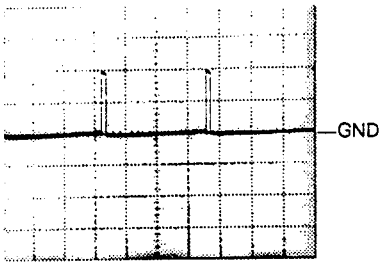
CONVERGENCE ASSY,
SUB CONVERGENCE ASSY,
CONVERGENCE PD ASSY

SCH-11

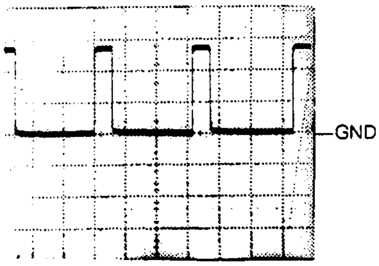
• Waveformes at CONVERGENCE AND SUB CONVERGENCE ASSEMBLIES

- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

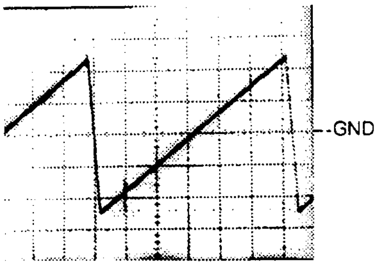
① **G1 Pin 3**
V range : 5V/div.
H range : 5msec/div.



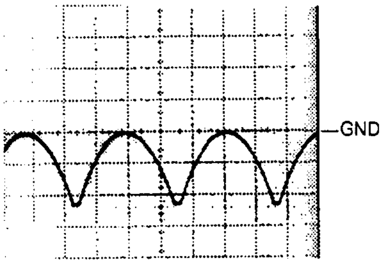
② **G1 Pin 4**
V range : 5V/div.
H range : 20 μsec/div.



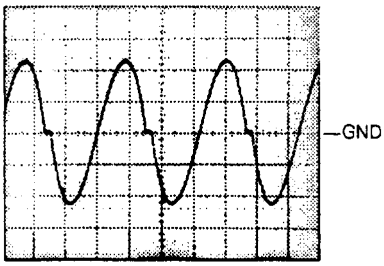
③ **D2325 Cathode**
V range : 0.5V/div.
H range : 10 μsec/div.



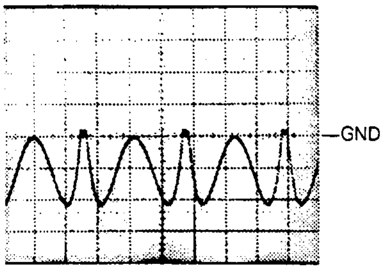
④ **D2327 Cathode**
V range : 1V/div.
H range : 20 μsec/div.



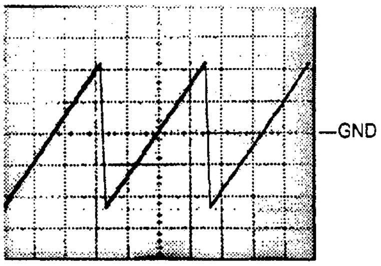
⑤ **D2328 Cathode**
V range : 0.5V/div.
H range : 20 μsec/div.



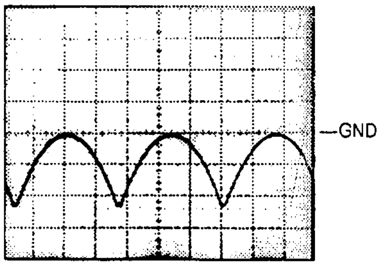
⑥ **D2329 Cathode**
V range : 1V/div.
H range : 20 μsec/div.



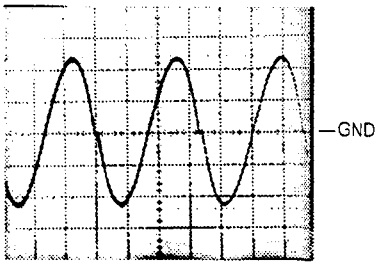
⑦ **D2352 Cathode**
V range : 0.5V/div.
H range : 5msec/div.



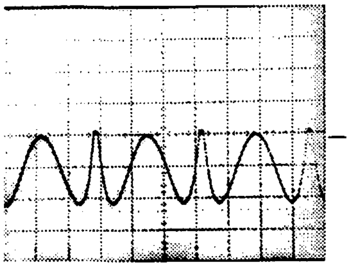
⑧ **D2355 Cathode**
V range : 1V/div.
H range : 5msec/div.



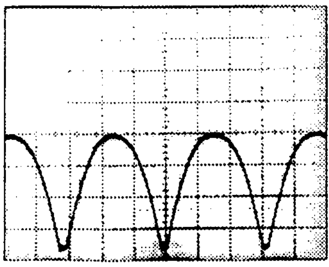
⑨ **D2357 Cathode**
V range : 0.5V/div.
H range : 5msec/div.



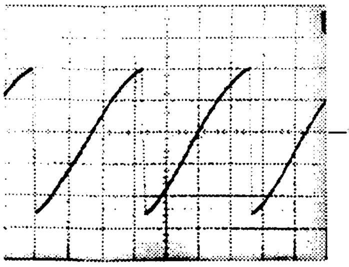
⑩ **D2358 Cathode**
V range : 1V/div.
H range : 5msec/div.



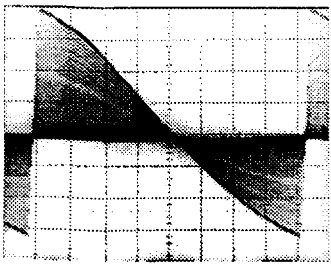
⑪ **IC2320 Pin 7**
V range : 0.2V/div.
H range : 20 μsec/div.



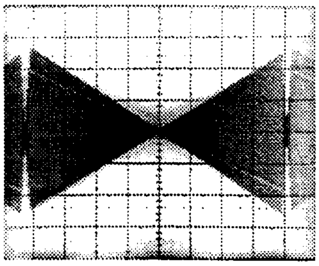
⑫ **IC2321 Pin 7**
V range : 0.5V/div.
H range : 5msec/div.



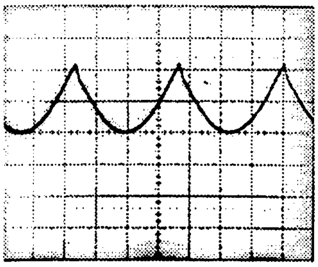
⑬ **C2381 – side**
V range : 0.2V/div.
H range : 2msec/div.



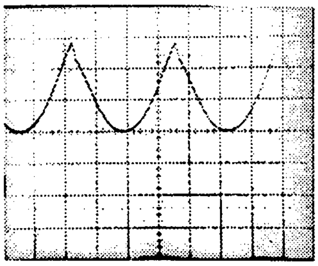
⑭ **C2345 – side**
V range : 0.5V/div.
H range : 2msec/div.



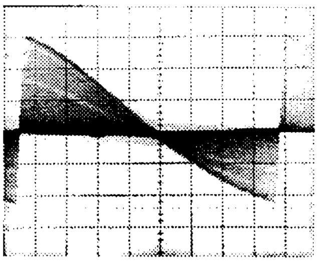
⑮ **IC2319 Pin 7**
V range : 1V/div.
H range : 5msec/div.



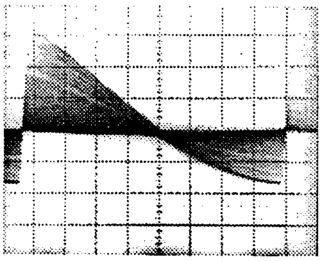
⑯ **Between R2391 and R2393**
V range : 1V/div.
H range : 5msec/div.



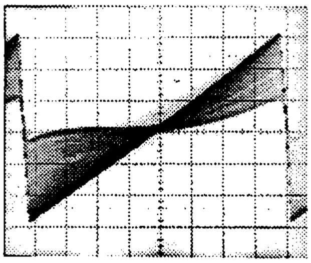
⑰ **IC2319 Pin 1**
V range : 0.2V/div.
H range : 2msec/div.



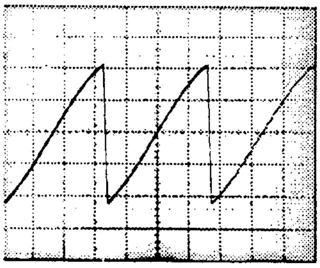
⑱ **IC2316 Pin 7**
V range : 0.2V/div.
H range : 2msec/div.



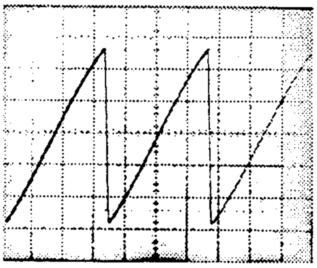
⑲ **IC2316 Pin 8**
V range : 0.2V/div.
H range : 2msec/div.



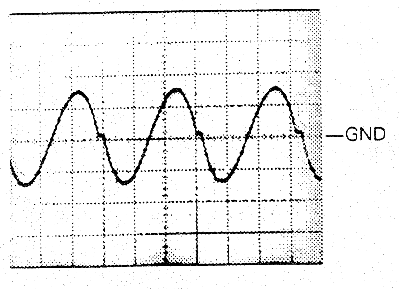
⑳-1 **IC2603 Pin 1**
V range : 0.5V/div.
H range : 5msec/div.
(Normal)



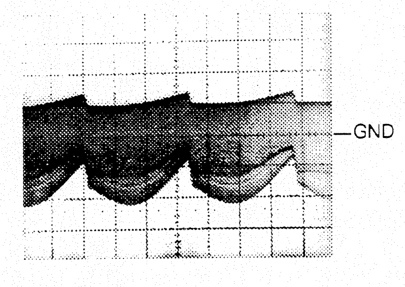
⑳-2 **IC2603 Pin 1**
V range : 0.5V/div.
H range : 5msec/div.
(Zoom)



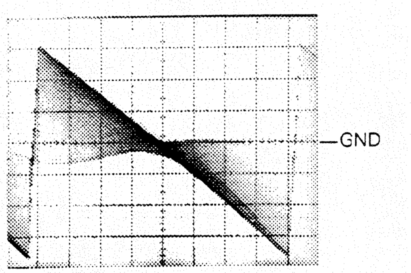
㉑ **IC2603 Pin 7**
V range : 0.2V/div.
H range : 20 μsec/div.
(Zoom)



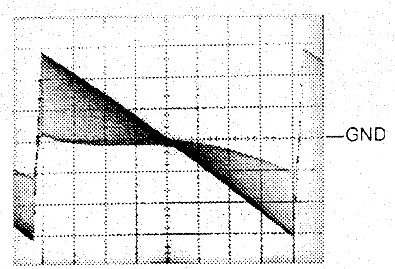
㉒ **IC2307 Pin 4**
V range : 1V/div.
H range : 5msec/div.



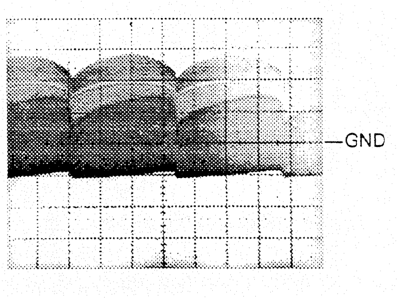
㉓ **IC2307 Pin 6**
V range : 0.2V/div.
H range : 2msec/div.



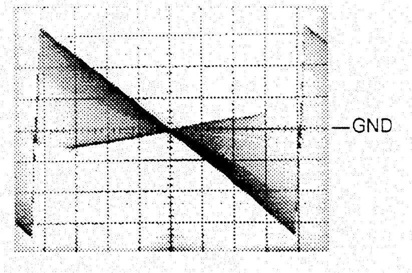
㉔ **IC2307 Pin 12**
V range : 0.2V/div.
H range : 2msec/div.



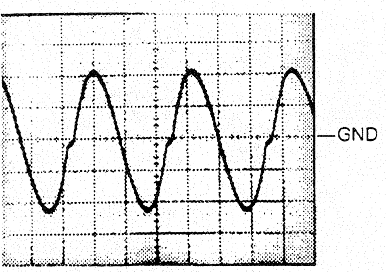
㉕ **IC2307 Pin 14**
V range : 1V/div.
H range : 5msec/div.



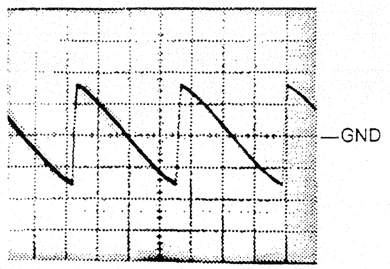
㉖ **IC2307 Pin 20**
V range : 0.2V/div.
H range : 2msec/div.



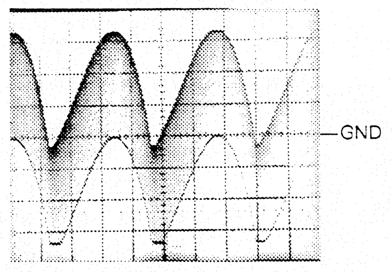
㉗ **G4 Pin 4**
V range : 1V/div.
H range : 20 μsec/div.
(Zoom)



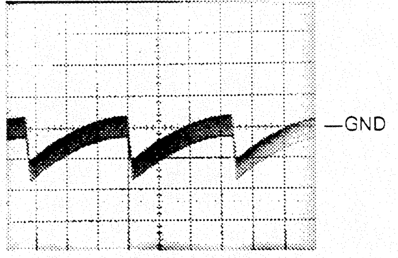
㉘ **G5 Pin 1**
V range : 0.5V/div.
H range : 5msec/div.



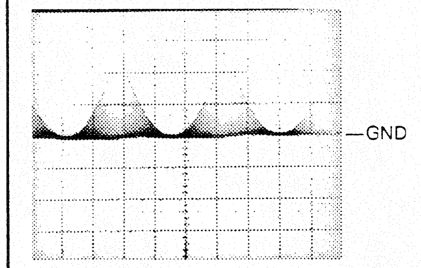
㉙ **IC2312 Pin 7**
V range : 1V/div.
H range : 5msec/div.



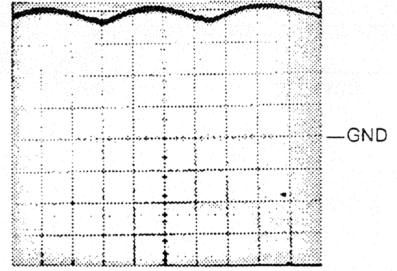
㉚ **IC2313 Pin 7**
V range : 0.5V/div.
H range : 5msec/div.

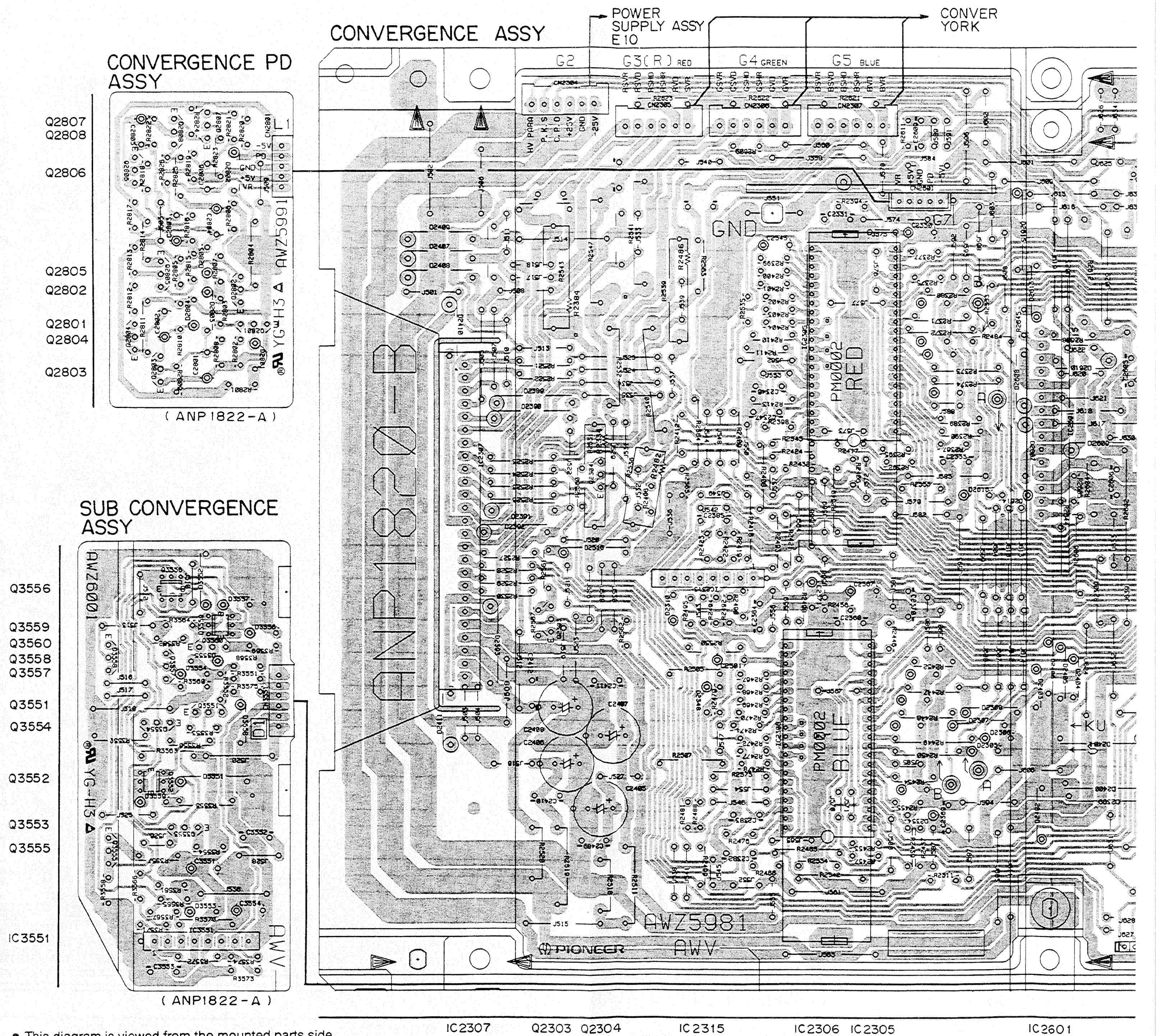


㉛ **D1 Pin 3**
V range : 0.5V/div.
H range : 5msec/div.

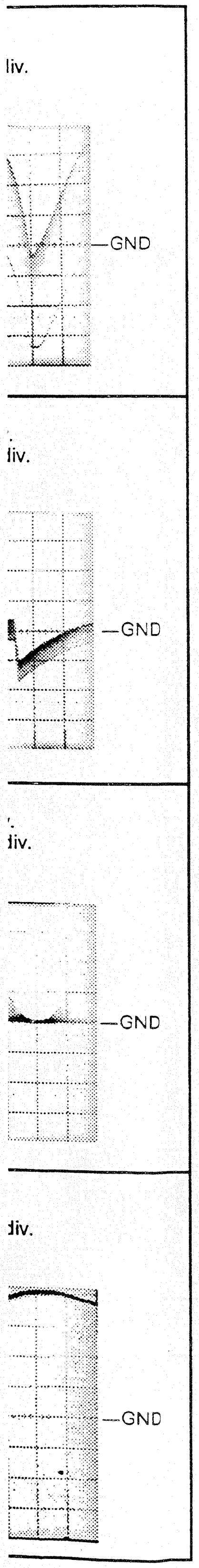


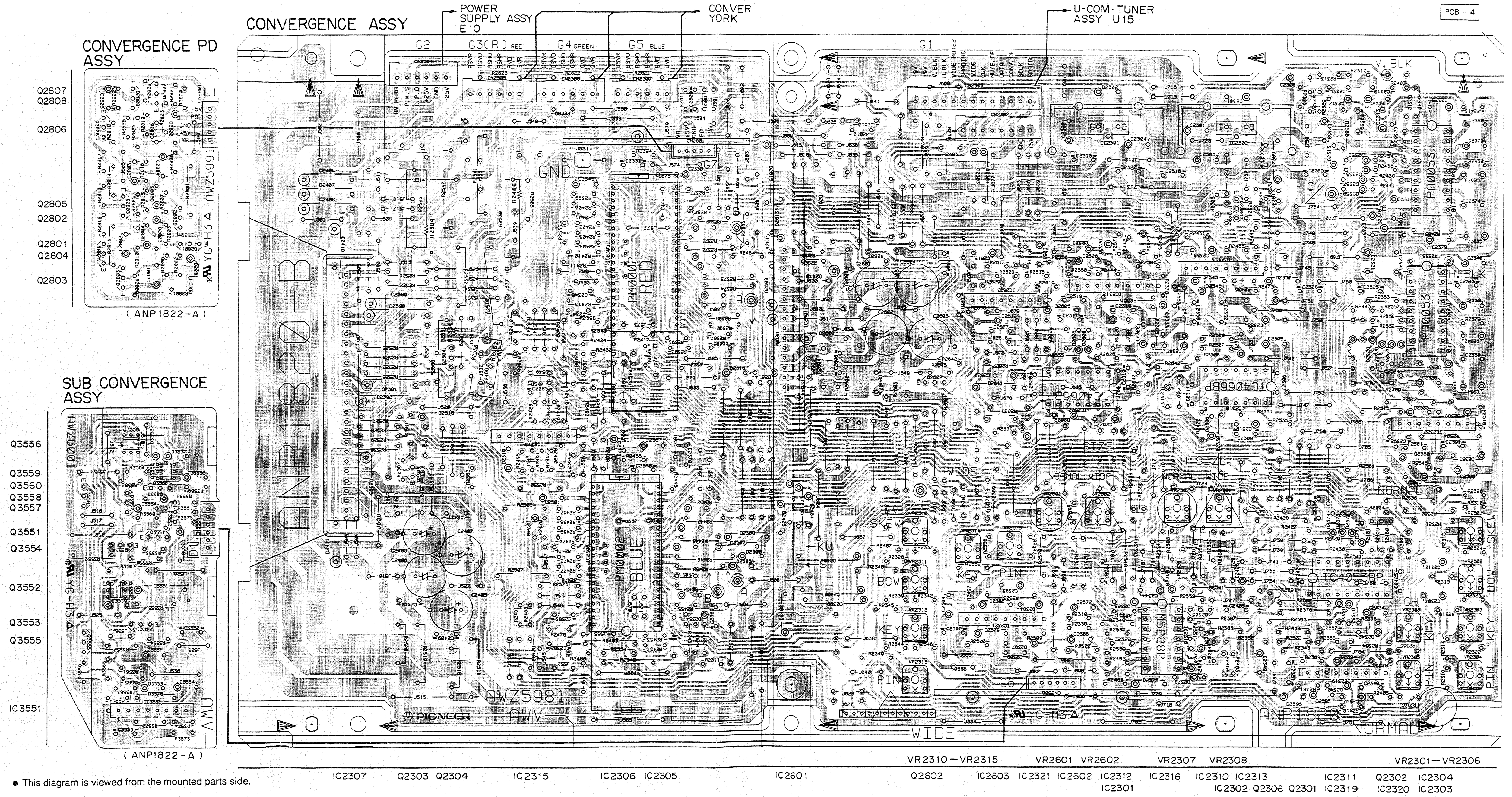
㉜ **G2 Pin 2**
V range : 2V/div.
H range : 5msec/div.




CONVERGENCE PD ASSY
Q2807
Q2808
Q2806
Q2805
Q2802
Q2801
Q2804
Q2803
AWZ5991
YG-H3
(ANP1822-A)
SUB CONVERGENCE ASSY
Q3556
Q3559
Q3560
Q3558
Q3557
Q3551
Q3554
Q3552
Q3553
Q3555
IC3551
AWZ6001
YG-H3
D1
AWV
(ANP1822-A)
CONVERGENCE ASSY
POWER SUPPLY ASSY E10
CONVER YORK
G2
G3(R) RED
G4 GREEN
G5 BLUE
G7
GND
ANP1820-B
PM0002 RED
PM0002 BLUE
AWZ5981
AWV
PIONEER
KU
IC2307
Q2303 Q2304
IC2315
IC2306 IC2305
IC2601

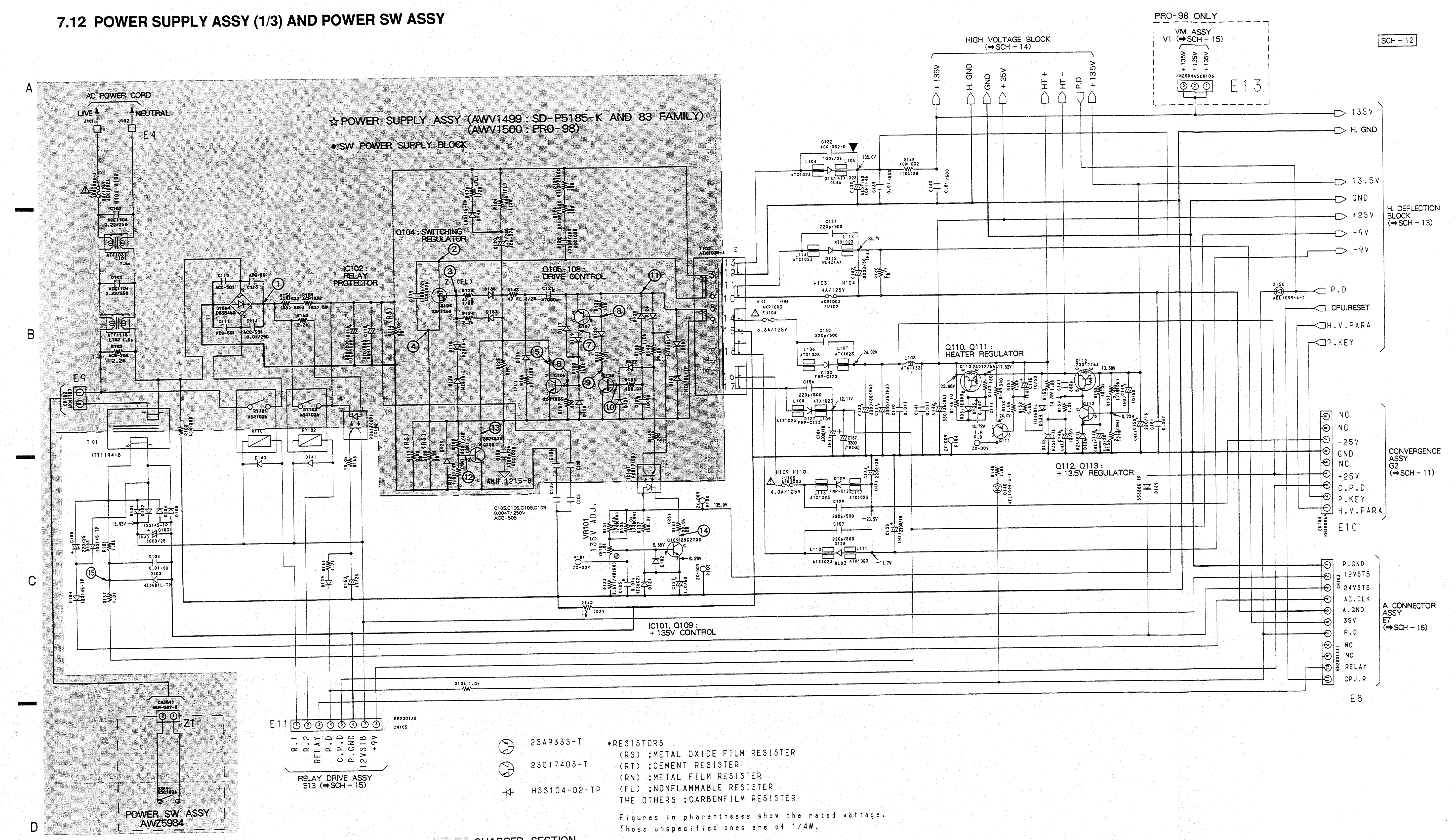
- This diagram is viewed from the mounted parts side.




CONVERGENCE ASSY
CONVERGENCE PD ASSY
SUB CONVERGENCE ASSY
POWER SUPPLY ASSY E10
CONVER YORK
U-COM·TUNER ASSY U15
PCB - 4
G2
G3(R) RED
G4 GREEN
G5 BLUE
G1
G7
G6
GND
ANP1820-B
PM0002 RED
PM0002 BLUE
TC4066BP
TC4053BP
M5528P
PA0053
AWZ5981
AWV
PIONEER
YG-M3
AWZ5991
YG-H3
AWZ6001
AMV
L1
V.BLK
V.SIZE
H.SIZE
WIDE
NORMAL
SKEW
BOW
KEY
PIN
KU
ANP1820
(ANP1822-A)
(ANP1822-A)
Q2807
Q2808
Q2806
Q2805
Q2802
Q2801
Q2804
Q2803
Q3556
Q3559
Q3560
Q3558
Q3557
Q3551
Q3554
Q3552
Q3553
Q3555
IC3551
IC2307
Q2303 Q2304
IC2315
IC2306 IC2305
IC2601
VR2310—VR2315
Q2602
IC2603 IC2321 IC2602
VR2601 VR2602
IC2312
IC2301
VR2307 VR2308
IC2316
IC2310 IC2313
IC2302 Q2306 Q2301
IC2311
IC2319
Q2302 IC2304
IC2320 IC2303
VR2301—VR2306

• This diagram is viewed from the mounted parts side.

7.12 POWER SUPPLY ASSY (1/3) AND POWER SW ASSY


A
B
C
D
AC POWER CORD
LIVE
NEUTRAL
J101
J102
E4
☆POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)
(AWV1500 : PRO-98)
• SW POWER SUPPLY BLOCK
Q104 : SWITCHING REGULATOR
IC102 : RELAY PROTECTOR
Q105-108 : DRIVE CONTROL
T102 ATK1074-A
E9
T101 ATT1194-B
RY101 ASR1036
RY102 ASR1036
ANH 1215-B
C105,C106,C108,C109 0.0047/250V ACG-505
VR101 135V ADJ.
IC101, Q109 : +135V CONTROL
R104 1.0k
CN2691 AKM-089-0
Z1
POWER SW ASSY AWZ5984
E11
R.1
R.2
RELAY
P.D
C.P.D
P.GND
12VSTB
+9V
KM200IA8 CN105
RELAY DRIVE ASSY
E13 (➡SCH – 15)
HIGH VOLTAGE BLOCK (➡SCH – 14)
+135V
H. GND
GND
+25V
HT +
HT –
P.D
+13.5V
PRO-98 ONLY
VM ASSY
V1 (➡SCH – 15)
E13
SCH – 12
135V
H. GND
13.5V
GND
+25V
+9V
-9V
H. DEFLECTION BLOCK (➡SCH – 13)
P.D
CPU.RESET
H.V.PARA
P.KEY
Q110, Q111 : HEATER REGULATOR
Q112, Q113 : +13.5V REGULATOR
NC
NC
-25V
GND
NC
+25V
C.P.D
P.KEY
H.V.PARA
E10
CONVERGENCE ASSY
G2
(➡SCH – 11)
P.GND
12VSTB
24VSTB
AC.CLK
A.GND
35V
P.D
NC
NC
RELAY
CPU.R
A CONNECTOR ASSY
E7
(➡SCH – 16)
E8
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
2SA933S-T
2SC1740S-T
HSS104-02-TP

*RESISTORS
(RS) :METAL OXIDE FILM RESISTER
(RT) :CEMENT RESISTER
(RN) :METAL FILM RESISTER
(FL) :NONFLAMMABLE RESISTER
THE OTHERS :CARBONFILM RESISTER

Figures in pharentheses show the rated wattage.
Those unspecified ones are of 1/4W.

K:K ,M:M ,Unspecified ones are of .

*CAPACITORS
p:pF,Unspecified ones are of F
Capacity / Voltage(:A.C , No mark:D.C)
Unspecified ones are of 50V

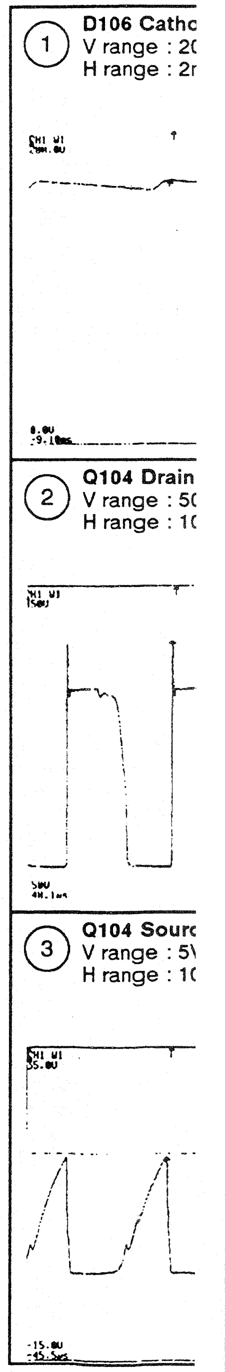
▨ CHARGED SECTION

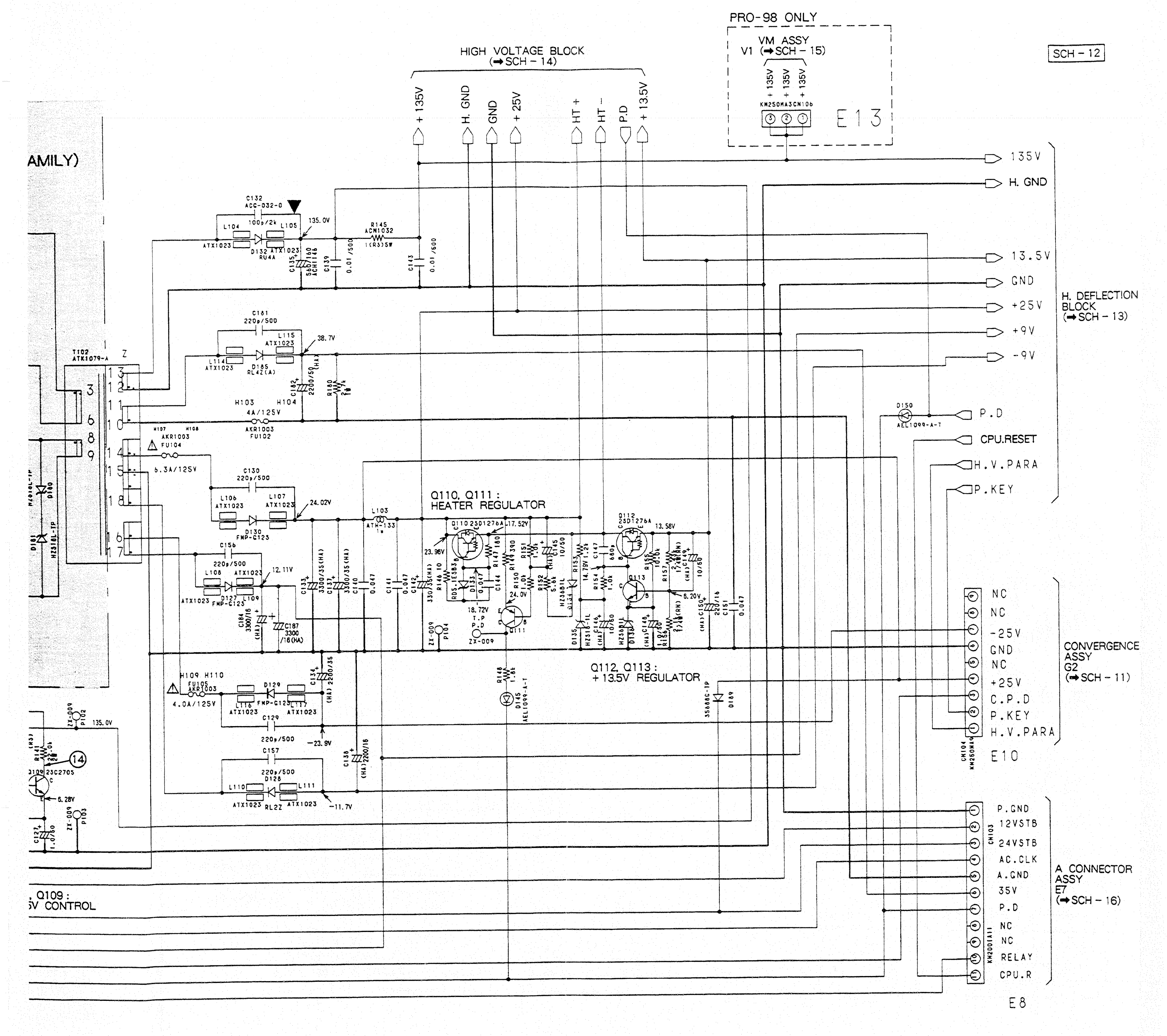
SCH-12 POWER SUPPLY ASSY (1/3), POWER SW ASSY

POWER SUPPLY ASSY (1/3), POWER SW ASSY **SCH-12**

• Waveformes
SUPPLY ASS
(SW POWER

• Input signal : Cc
• Picuture quality
• DC range (Unle




PRO-98 ONLY
VM ASSY
V1 (➡SCH – 15)
135V
+ 135V
+ 135V
E13
HIGH VOLTAGE BLOCK
(➡SCH – 14)
SCH – 12
+ 135V
H. GND
GND
+ 25V
HT +
HT –
P.D
+ 13.5V
135V
H. GND
13.5V
GND
+25V
+9V
-9V
H. DEFLECTION BLOCK
(➡SCH – 13)
P.D
CPU.RESET
H.V.PARA
P.KEY
AMILY)
C132
L104
L105
ATX1023
D132
R145
135.0V
C161
L115
D185
28.7V
H103
H104
4A/125V
FU102
FU104
5.3A/125V
T102
ATX1079-A
C130
L106
L107
D130
24.02V
C156
L108
12.11V
Q110, Q111 :
HEATER REGULATOR
17.52V
13.58V
23.38V
18.72V
5.20V
Q112, Q113 :
+ 13.5V REGULATOR
H109
H110
FU105
4.0A/125V
D129
C129
-23.8V
C157
D128
L110
L111
RL22
-11.7V
135.0V
6.28V
NC
NC
-25V
GND
NC
+25V
C.P.D
P.KEY
H.V.PARA
E10
CONVERGENCE ASSY
G2
(➡SCH – 11)
P.GND
12VSTB
24VSTB
AC.CLK
A.GND
35V
P.D
NC
NC
RELAY
CPU.R
E8
A CONNECTOR ASSY
E7
(➡SCH – 16)
, Q109 :
5V CONTROL

AL OXIDE FILM RESISTER
IENT RESISTER
'AL FILM RESISTER
IFLAMMABLE RESISTER
:S :CARBONFILM RESISTER

n pharentheses show the rated wattage.
ipecified ones are of 1/4W.

.Unspecified ones are of .

ecified ones are of F
ity

Voltage(:A.C , No mark:D.C)
ed ones are of 50V

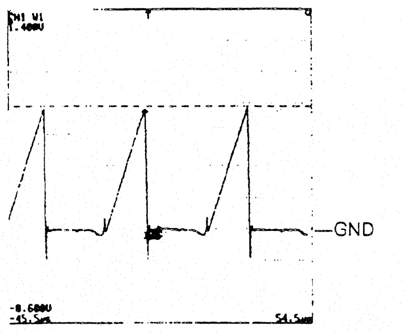
POWER SUPPLY
ASSY (1/3),
POWER SW ASSY

SCH-12

• Waveformes at POWER SUPPLY ASSY (SW POWER SUPPLY BLOCK)

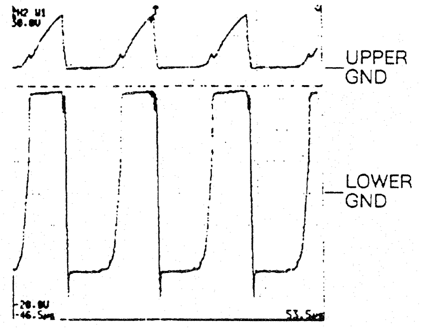
- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

④ Q104 Gate
V range : 200mV/div.
H range : 10 μsec/div.

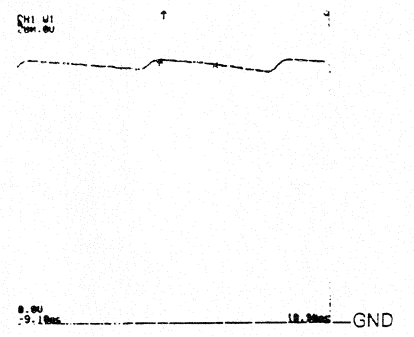


③ Upper : Q104 Source
V : 10V/div. H : 10 μsec/div.

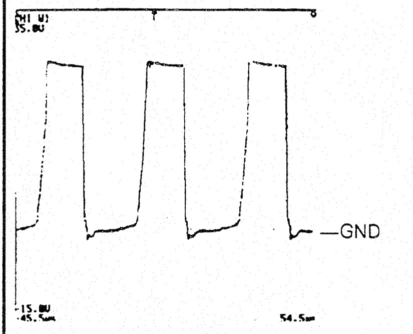
⑧ Lower : Q107 Base
V : 5V/div. H : 10 μsec/div.



① D106 Cathode
V range : 20V/div.
H range : 2msec/div.

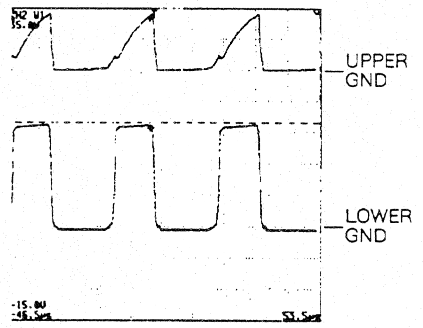


⑤ Q106 Collector
V range : 5V/div.
H range : 10 μsec/div.

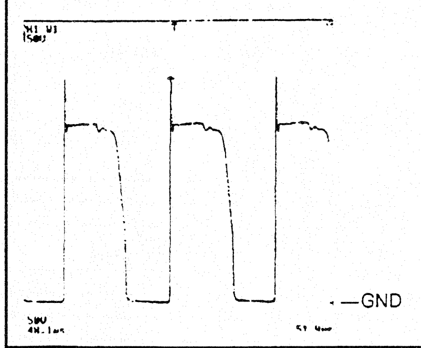


③ Upper : Q104 Source
V : 10V/div. H : 10 μsec/div.

⑨ Lower : Q108 Base
V : 5V/div. H : 10 μsec/div.

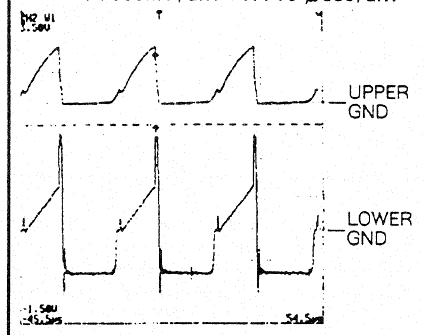


② Q104 Drain
V range : 50V/div.
H range : 10 μsec/div.



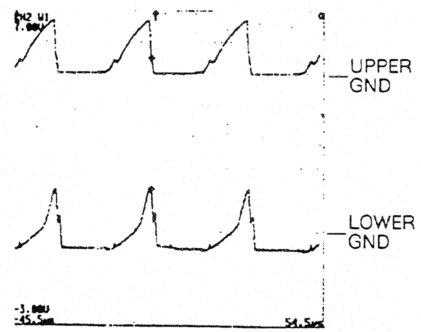
③ Upper : Q104 Source
V : 10V/div. H : 10 μsec/div.

⑥ Lower : Q106 Base
V : 500mV/div. H : 10 μsec/div.

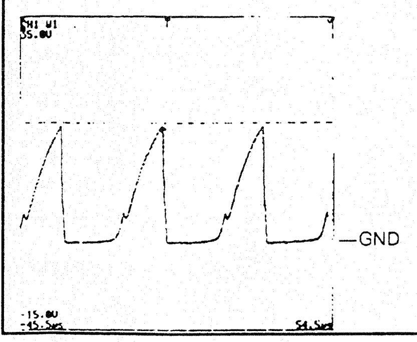


③ Upper : Q104 Source
V : 10V/div. H : 10 μsec/div.

⑩ Lower : Q108 Base
V : 1V/div. H : 10 μsec/div.

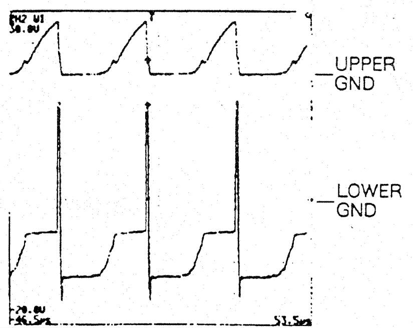


③ Q104 Source
V range : 5V/div.
H range : 10 μsec/div.



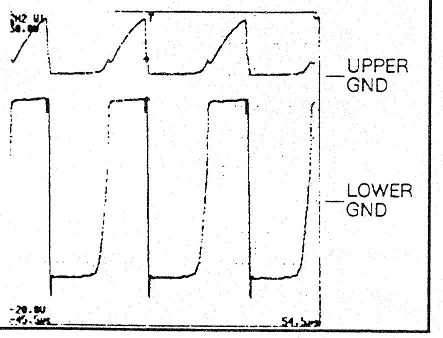
③ Upper : Q104 Source
V : 10V/div. H : 10 μsec/div.

⑦ Lower : Q107 Collector
V : 5V/div. H : 10 μsec/div.



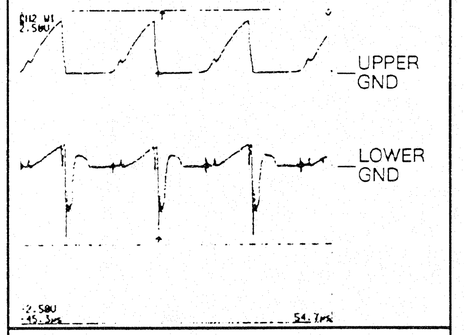
③ Upper : Q104 Source
V : 10V/div. H : 10 μsec/div.

⑪ Lower : Q107 Emitter
V : 5V/div. H : 10 μsec/div.



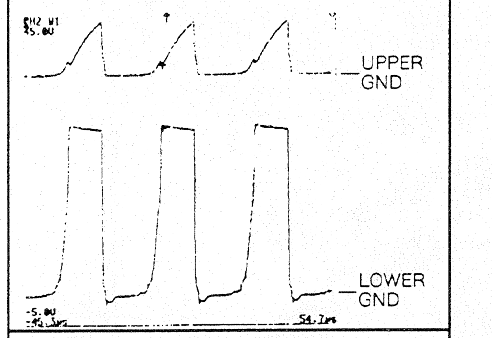
③ **Upper : Q104 Source**
V : 10V/div. H : 10 μsec/div.

⑫ **Lower : Q105 Base**
V : 500mV/div. H : 10 μsec/div.

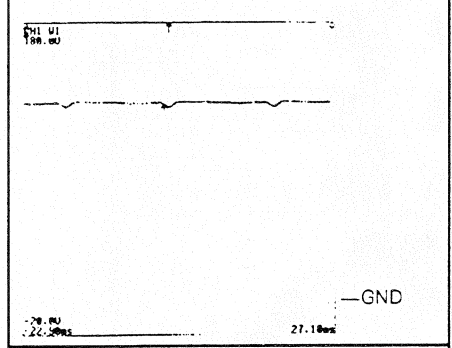


③ **Upper : Q104 Source**
V : 10V/div. H : 10 μsec/div.

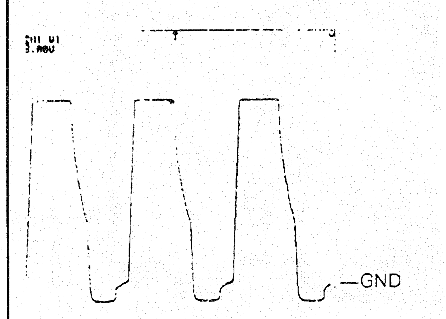
⑬ **Lower : Q105 Collector**
V : 5V/div. H : 10 μsec/div.

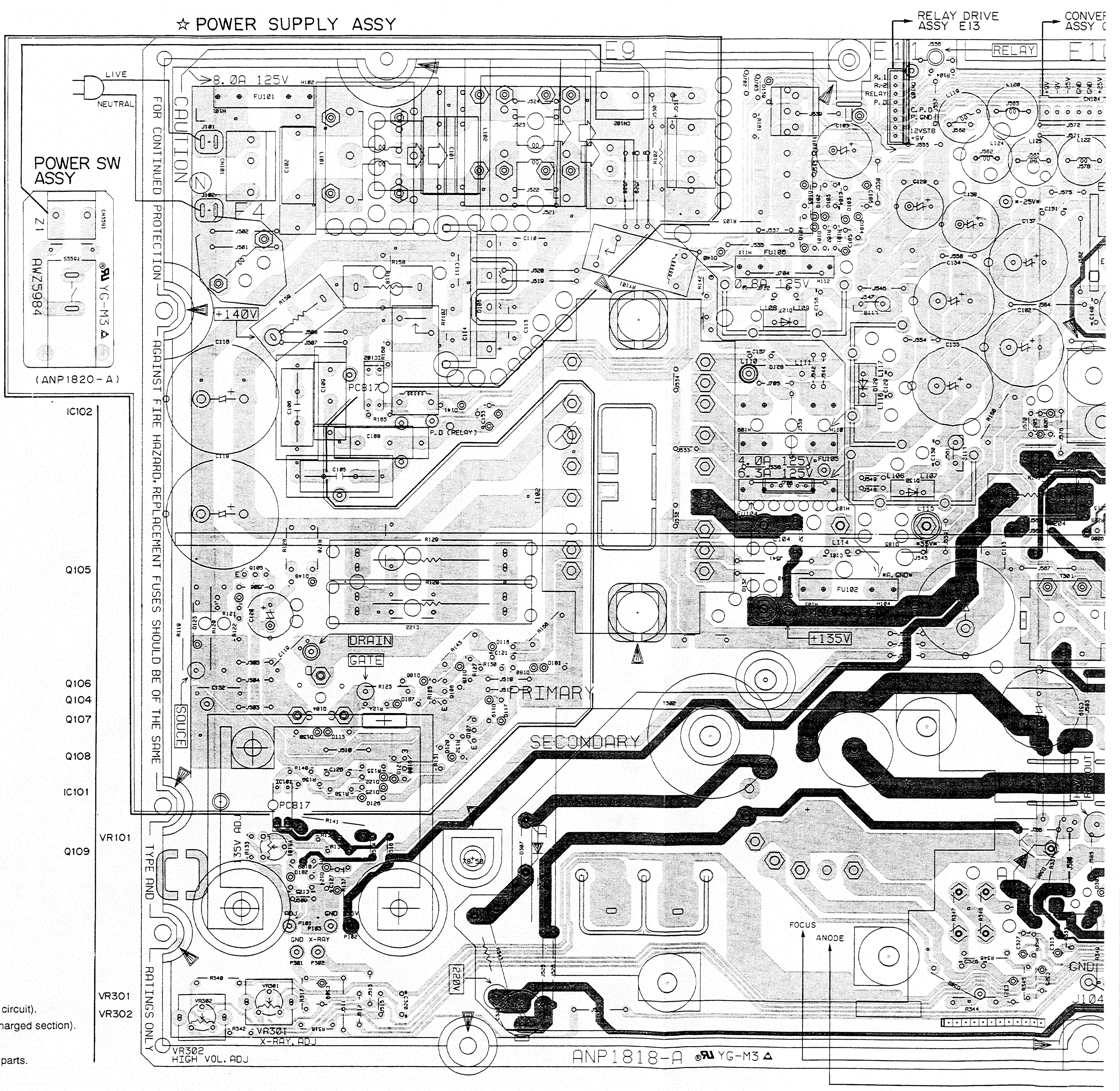


⑭ **Q109 Collector**
V range : 20V/div.
H range : 5msec/div.



⑮ **D103 Cathode**
V range : 1V/div.
H range : 5msec/div.

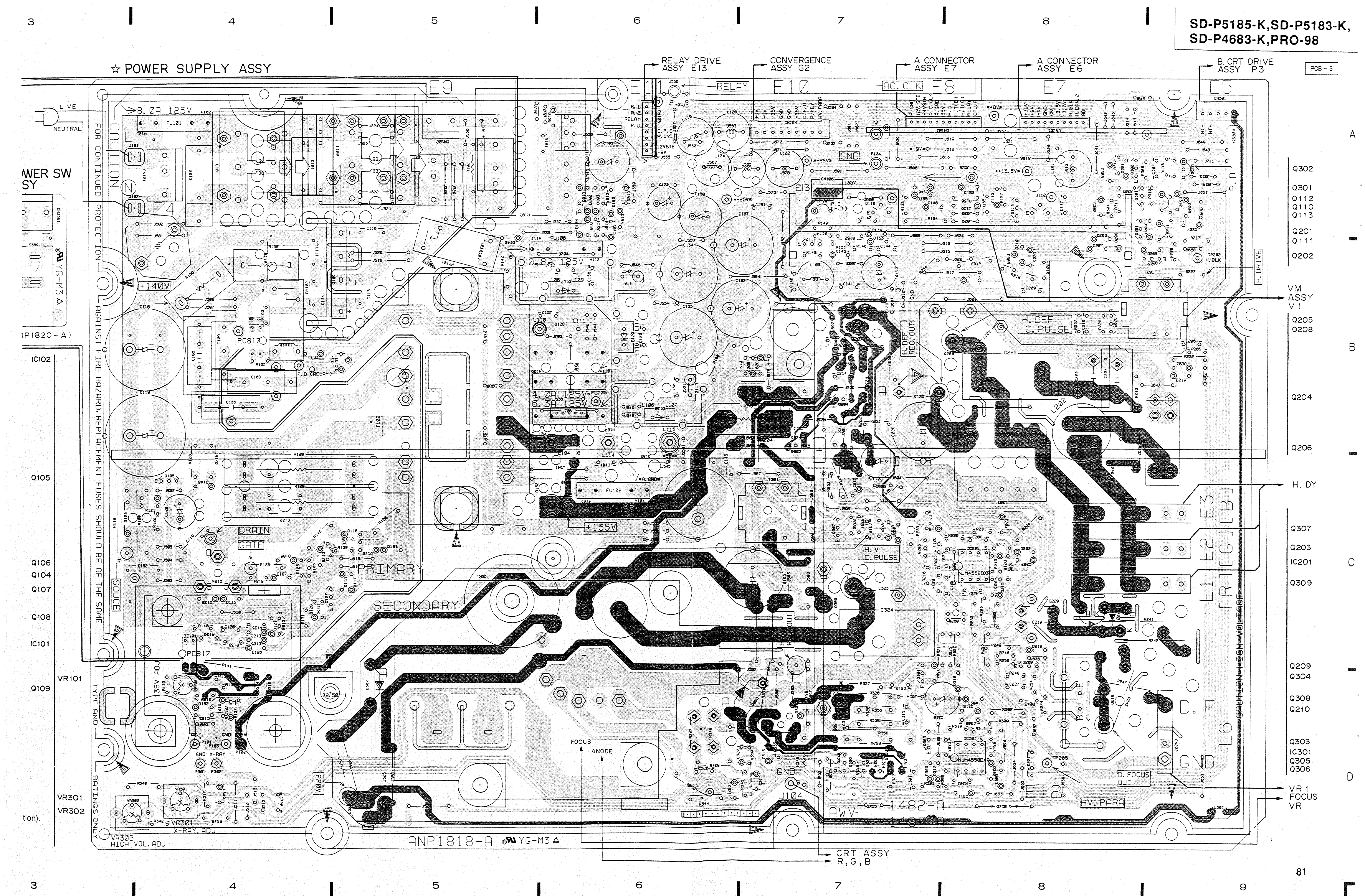



☆ POWER SUPPLY ASSY
RELAY DRIVE ASSY E13
CONVER ASSY
POWER SW ASSY
(ANP1820-A)
AWZ5984
LIVE
NEUTRAL
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY
CAUTION
8.0A 125V
FU101
4.0A 125V
6.3A 125V
0.8A 125V
FU106
FU105
FU102
+140V
+135V
PC817
DRAIN
GATE
PRIMARY
SECONDARY
SOUCE
135V ADJ
X-RAY
GND
VR301 X-RAY ADJ
VR302 HIGH VOL. ADJ
FOCUS
ANODE
220V
RELAY
ANP1818-A
YG-M3
IC102
Q105
Q106
Q104
Q107
Q108
IC101
Q109
VR101
VR301
VR302

- This diagram is viewed from the mounted parts side.

▭ mark shows the charged section (Power supply primary side circuit).
■ mark shows a high voltage generation point (excepting the charged section).

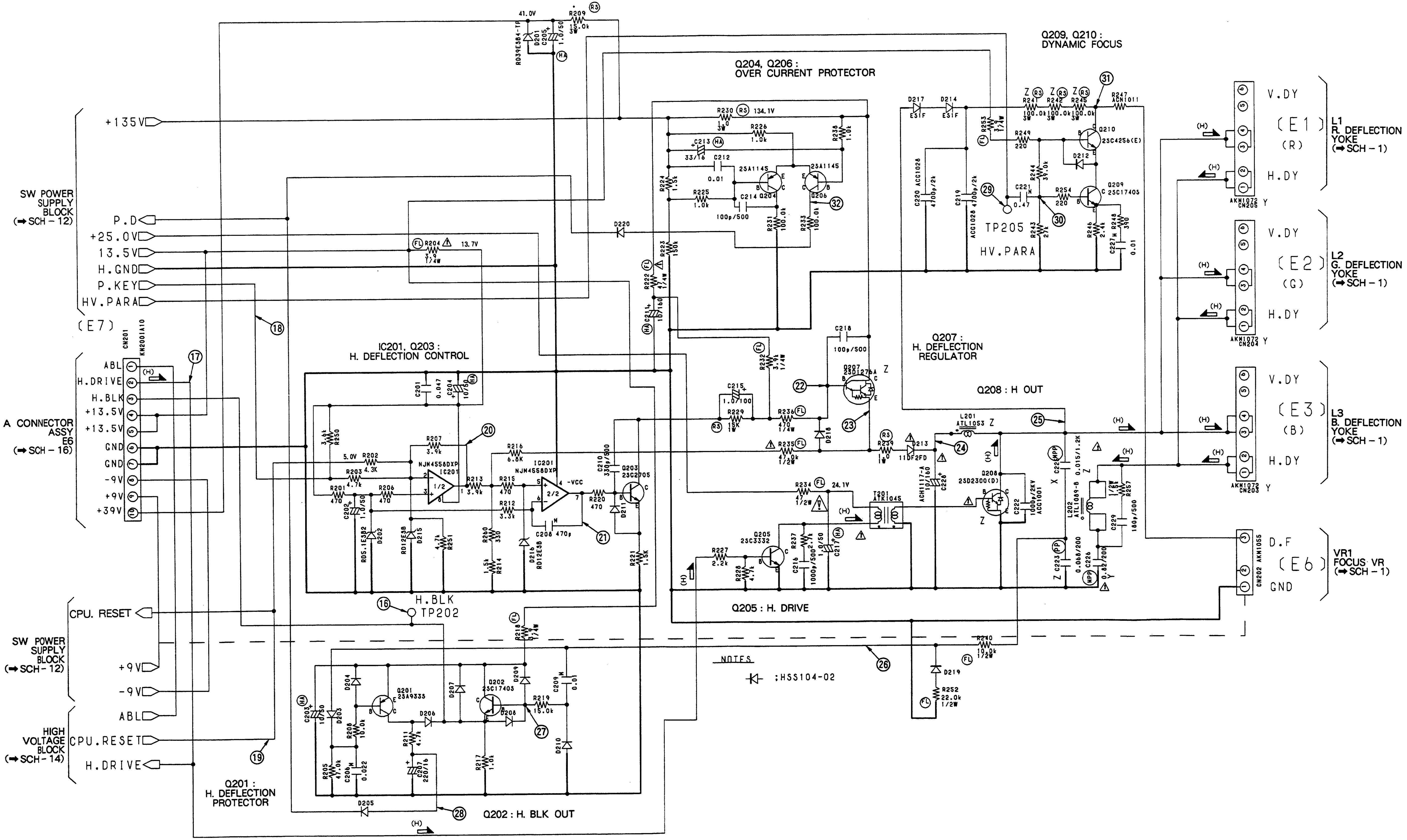
- Parts marked ☆ are important parts which relate to X-ray radiation.
If any of these parts need to replaced. Always replace with specified parts.


3
4
5
6
7
8
9
A
B
C
D
☆ POWER SUPPLY ASSY
RELAY DRIVE ASSY E13
CONVERGENCE ASSY G2
A CONNECTOR ASSY E7
A CONNECTOR ASSY E6
B.CRT DRIVE ASSY P3
PCB-5
E9
E11
RELAY
E10
AC.CLK
E8
E7
E5
E13
GND
LIVE
NEUTRAL
8.0A 125V
FU101
E4
WER SW
SY
IP1820-A)
CAUTION FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY
+140V
PC817
P.D (RELAY)
FU100
FU105
4.0A 125V
6.3A 125V
FU102
+135V
DRAIN
GATE
PRIMARY
SECONDARY
SOUCE
135V ADJ
X-RAY
VR301 X-RAY ADJ
VR302 HIGH VOL.ADJ
ANP1818-A YG-M3
H.DEF C.PULSE
H.DEF REG.OUT
H.V C.PULSE
H.DRIVE
H.BLK
P.D
VM ASSY V1
H. DY
E3
E2
E1
[R]
[G]
[B]
CAUTION HIGH VOLTAGE
D.F
E6
GND
FOCUS
ANODE
D.FOCUS OUT
HV.PARA
E12
J104
AWV
1482-A
CRT ASSY R,G,B
VR1
FOCUS
VR
NJM4558DX
IC201
IC301
tion).
IC102
Q105
Q106
Q104
Q107
Q108
IC101
VR101
Q109
VR301
VR302
Q302
Q301
Q112
Q110
Q113
Q201
Q111
Q202
Q205
Q208
Q204
Q206
Q307
Q203
IC201
Q309
Q209
Q304
Q308
Q210
Q303
IC301
Q305
Q306

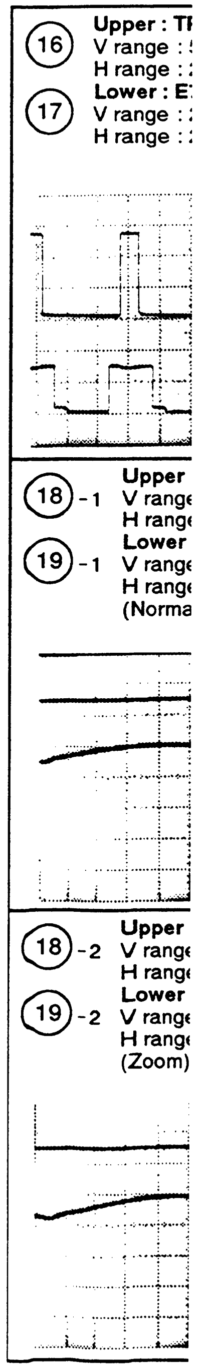
7.13 POWER SUPPLY ASSY (2/3)

☆POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)
(AWV1500 : PRO-98)

• H. DEFLECTION BLOCK


(H) : H. Deflection signal route
A
B
C
D
+135V
SW POWER SUPPLY BLOCK (➡SCH – 12)
P.D
+25.0V
13.5V
H.GND
P.KEY
HV.PARA
(E7)
CN201 KM200IA10
ABL
H.DRIVE
H.BLK
+13.5V
+13.5V
GND
GND
-9V
+9V
+39V
A CONNECTOR ASSY E6 (➡SCH – 16)
CPU. RESET
SW POWER SUPPLY BLOCK (➡SCH – 12)
+9V
-9V
ABL
HIGH VOLTAGE BLOCK (➡SCH – 14)
CPU.RESET
H.DRIVE
Q201 : H. DEFLECTION PROTECTOR
Q202 : H. BLK OUT
IC201, Q203 : H. DEFLECTION CONTROL
Q204, Q206 : OVER CURRENT PROTECTOR
Q205 : H. DRIVE
Q207 : H. DEFLECTION REGULATOR
Q208 : H OUT
Q209, Q210 : DYNAMIC FOCUS
H.BLK TP202
TP205 HV.PARA
NJM4558DXP IC201
23A1145 Q204
23A1145 Q206
2SB1274A Q207
2SD2300(D) Q208
2SC1740S Q209
2SC4256(E) Q210
2SC3332 Q205
2SC2705 Q203
2SA933S Q201
2SC1740S Q202
T201 ATK1045
L201 ATL1053
L202 ATL1089-B
R204 13.7V
R230 134.1V
R234 24.1V
41.0V
5.0V
V.DY
(E1)
(R)
H.DY
L1 R. DEFLECTION YOKE (➡SCH – 1)
AKM1072 CN205
V.DY
(E2)
(G)
H.DY
L2 G. DEFLECTION YOKE (➡SCH – 1)
AKM1072 CN204
V.DY
(E3)
(B)
H.DY
L3 B. DEFLECTION YOKE (➡SCH – 1)
AKM1072 CN203
D.F
(E6)
GND
CN202 AKM1055
VR1 FOCUS VR (➡SCH – 1)
NOTES
:HSS104-02

• Waveformes
SUPPLY AS
(H. DEFLEC
• Input signal : C
• Picuture quality
• DC range (Unl

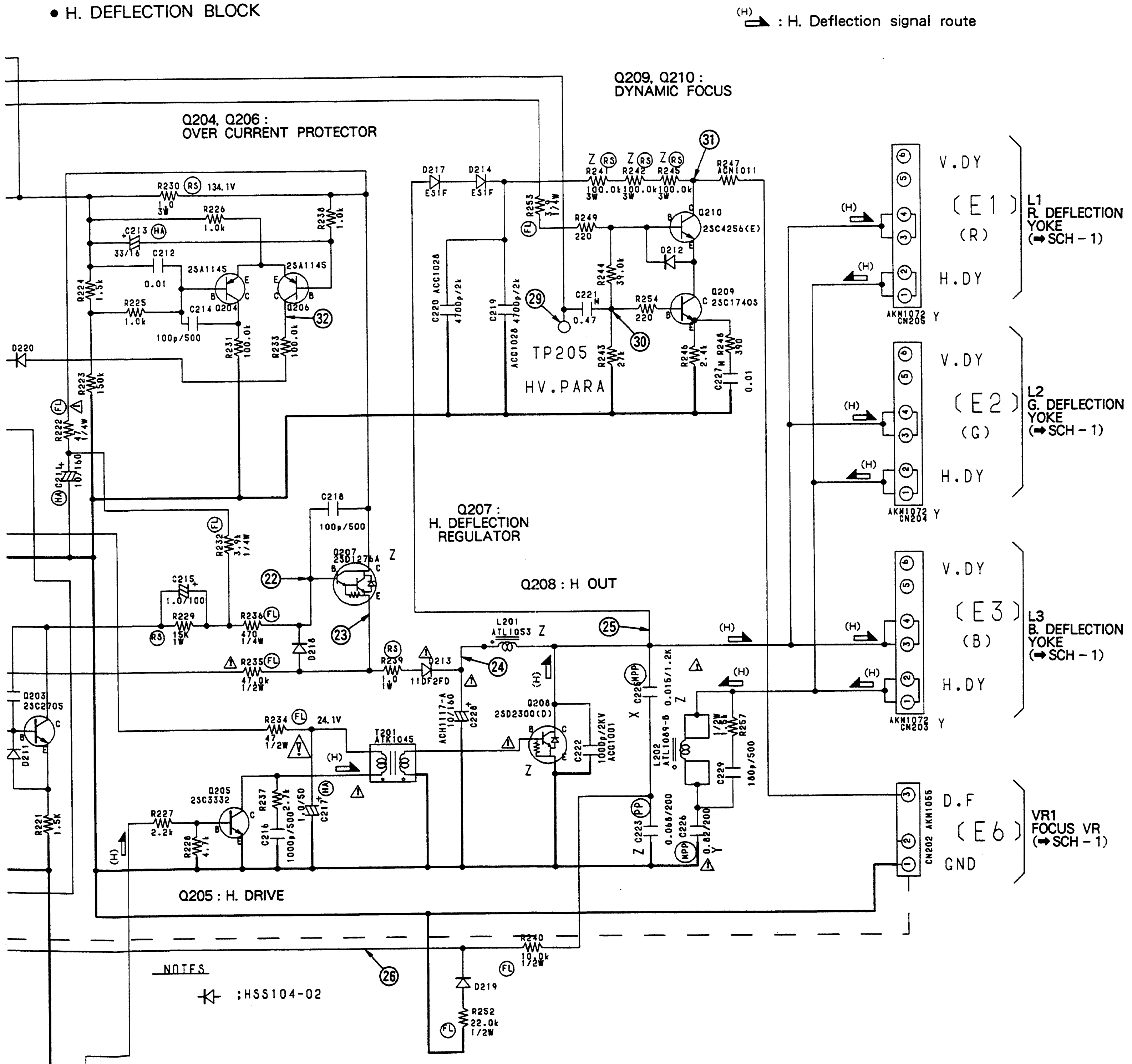


SCH-13 POWER SUPPLY ASSY (2/3)

POWER SUPPLY ASSY (2/3) **SCH-13**

☆POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)
(AWV1500 : PRO-98)

- H. DEFLECTION BLOCK


(H) : H. Deflection signal route
Q209, Q210 : DYNAMIC FOCUS
Q204, Q206 : OVER CURRENT PROTECTOR
R230 134.1V
25A1145
25A1145
Q204
Q206
D217 E31F
D214 E31F
R241 100.0k 3W
R242 100.0k 3W
R245 100.0k 3W
R247 ACN1011
Q210 2SC4256(E)
D212
Q209 2SC1740S
TP205 HV.PARA
C220 ACG1028 4700p/2k
C219 ACG1028 4700p/2k
C221 0.47
R254 220
Q207 : H. DEFLECTION REGULATOR
Q207 2SD1276A
Q208 : H OUT
L201 ATL1053
D213 11DF2FD
Q208 2SD2300(D)
C222 1000p/2KV ACG1001
L202 ATL1069-B
T201 ATR1045
R234 24.1V
Q205 2SC3332
Q205 : H. DRIVE
Q203 2SC2705
D220
D211
R240 10.0k 1/2W
D219
R252 22.0k 1/2W
V.DY
H.DY
(E1) (R)
L1 R. DEFLECTION YOKE (➡SCH-1)
AKM1072 CN205
(E2) (G)
L2 G. DEFLECTION YOKE (➡SCH-1)
AKM1072 CN204
(E3) (B)
L3 B. DEFLECTION YOKE (➡SCH-1)
AKM1072 CN203
D.F
(E6)
GND
CN202 AKM1055
VR1 FOCUS VR (➡SCH-1)
NOTES
:HSS104-02
16
17
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32

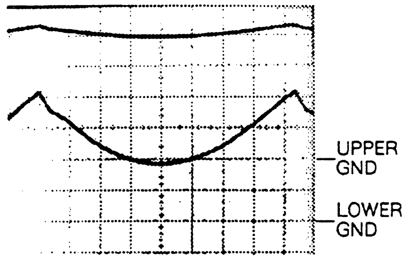
POWER SUPPLY ASSY (2/3)

SCH-13

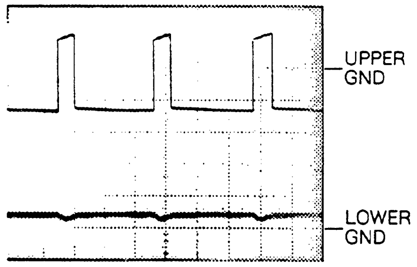
• Waveformes at POWER SUPPLY ASSY (H. DEFLECTION BLOCK)

- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

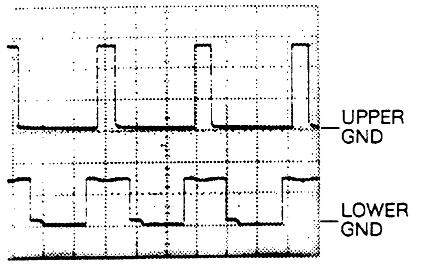
⑳ **Upper : IC201 Pin1**
V range : 2V/div.
H range : 2msec/div.
㉑ **Lower : IC201 Pin 7**
V range : 2V/div.
H range : 2msec/div.



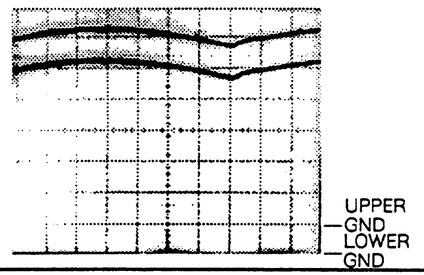
㉖ **Upper : D219 Cathode**
V range : 20V/div.
H range : 20 μsec/div.
㉘ **Lower : D205 Anode**
V range : 0.2V/div.
H range : 20 μsec/div.



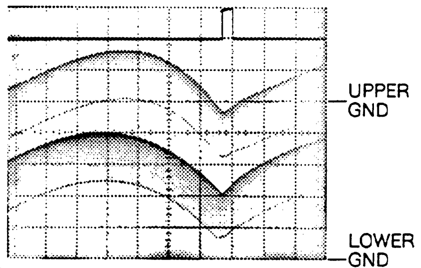
⑯ **Upper : TP202 (H. BLK)**
V range : 5V/div.
H range : 20 μsec/div.
⑰ **Lower : E7 Pin 2**
V range : 2V/div.
H range : 20 μsec/div.



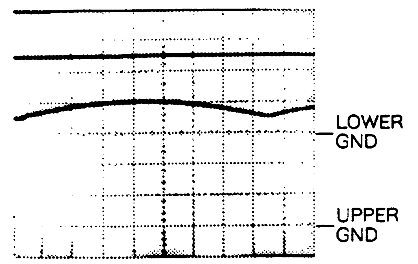
㉒ **Upper : Q207 Base**
V range : 20V/div.
H range : 2msec/div.
㉓ **Lower : Q207 Emitter**
V range : 20V/div.
H range : 2msec/div.



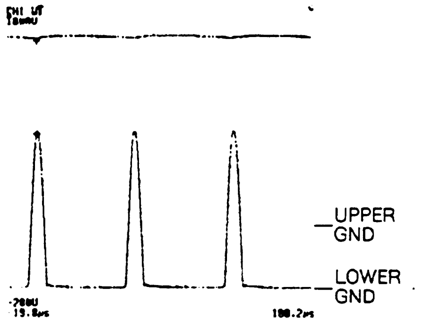
㉙ **Upper : TP205 (HV. PARA)**
V range : 2V/div.
H range : 2msec/div.
㉚ **Lower : Between C221 and R254**
V range : 2V/div.
H range : 2msec/div.



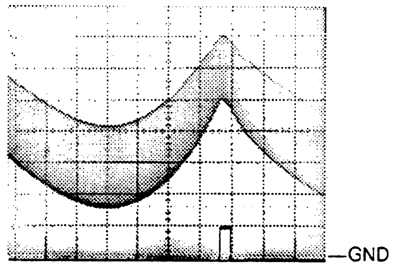
⑱-1 **Upper : Between R203 and R250**
V range : 2V/div.
H range : 2msec/div.
⑲-1 **Lower : Lead wire of R202**
V range : 2V/div.
H range : 2msec/div.
(Normal)



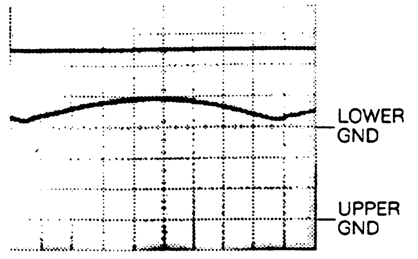
㉔ **Upper : D213 Cathode**
V : 20V/div. H : 20 μsec/div.
㉕ **Lower : Q208 Collector**
V : 200V/div. H : 20 μsec/div.



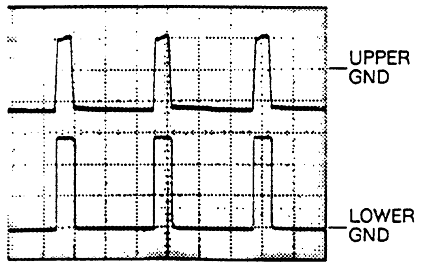
㉛ **Q210 Collector**
V range : 100V/div.
H range : 2msec/div.



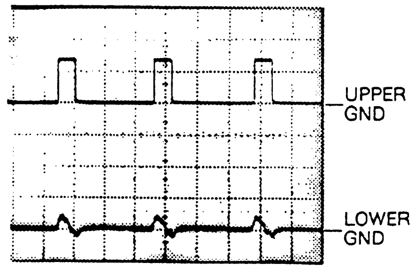
⑱-2 **Upper : Between R203 and R250**
V range : 2V/div.
H range : 2msec/div.
⑲-2 **Lower : Lead wire of R202**
V range : 2V/div.
H range : 2msec/div.
(Zoom)



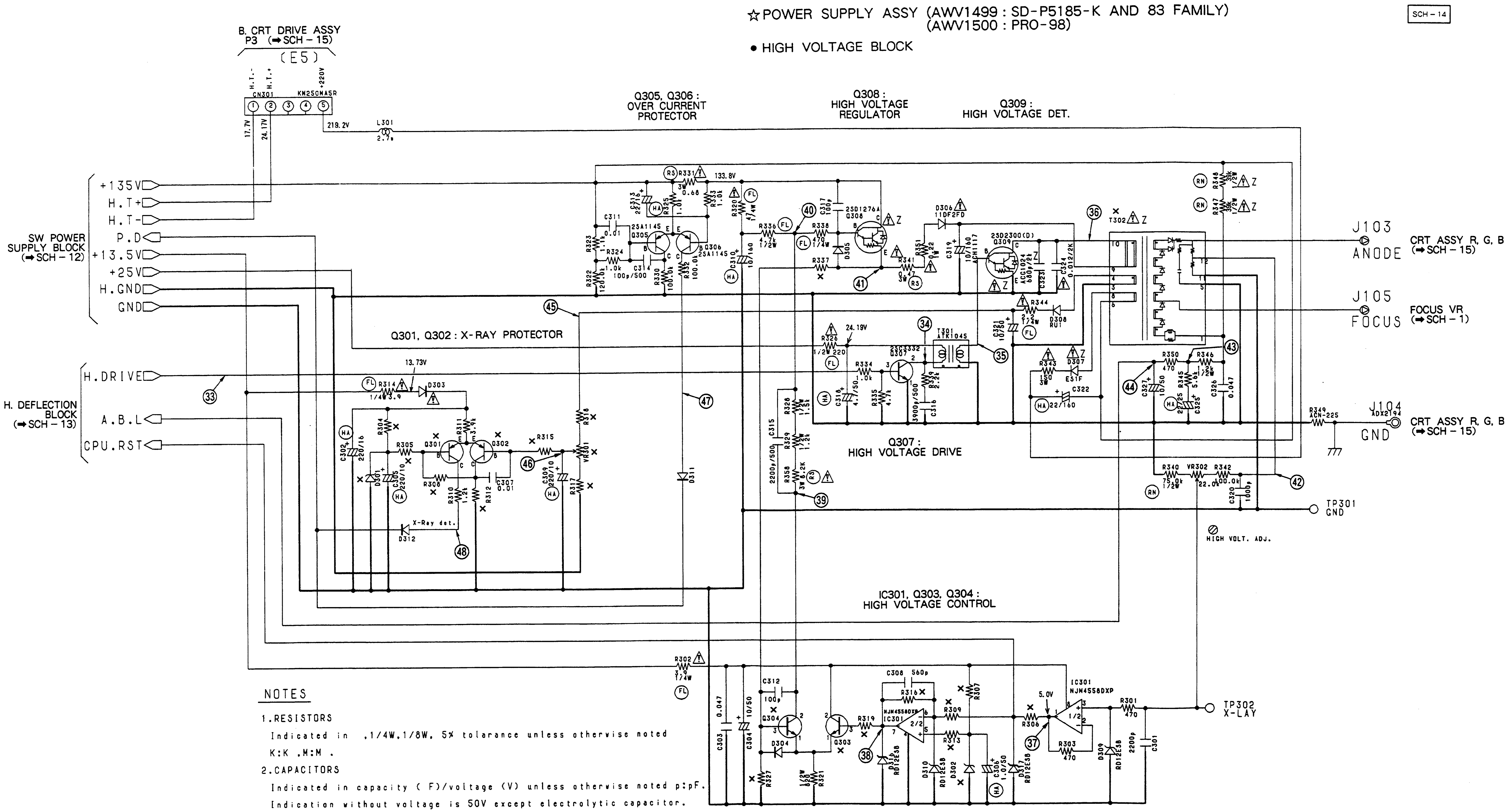
㉖ **Upper : D219 Cathode**
V range : 20V/div.
H range : 20 μsec/div.
㉗ **Lower : Q202 Base**
V range : 5V/div.
H range : 20 μsec/div.



⑯ **Upper : TP202 (H. BLK)**
V range : 10V/div.
H range : 20 μsec/div.
㉜ **Lower : Q206 Collector**
V range : 0.5V/div.
H range : 20 μsec/div.



7.14 POWER SUPPLY ASSY (3/3)


☆POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)
(AWV1500 : PRO-98)
• HIGH VOLTAGE BLOCK
B. CRT DRIVE ASSY
P3 (➡SCH – 15)
(E5)
CN301
KM250NA5R
H.T.-
H.T.+
+220V
17.7V
24.17V
219.2V
L301
2.7μ
Q305, Q306 :
OVER CURRENT PROTECTOR
Q308 :
HIGH VOLTAGE REGULATOR
Q309 :
HIGH VOLTAGE DET.
SW POWER SUPPLY BLOCK
(➡SCH – 12)
+135V
H.T+
H.T-
P.D
+13.5V
+25V
H.GND
GND
133.8V
2SA1145
Q305
2SA1145
Q306
2SD1276A
Q308
2SD2300(D)
Q309
D306
11DF2FD
T302
J103
ANODE
CRT ASSY R, G, B
(➡SCH – 15)
J105
FOCUS
FOCUS VR
(➡SCH – 1)
Q301, Q302 : X-RAY PROTECTOR
24.19V
T301
ATK1045
2SC3332
Q307
H. DEFLECTION BLOCK
(➡SCH – 13)
H.DRIVE
A.B.L
CPU.RST
13.73V
D303
X-Ray det.
D312
D311
Q307 :
HIGH VOLTAGE DRIVE
R349
ACN-225
J104
ADX2194
GND
CRT ASSY R, G, B
(➡SCH – 15)
TP301
GND
HIGH VOLT. ADJ.
VR302
IC301, Q303, Q304 :
HIGH VOLTAGE CONTROL
IC301
NJM4558DXP
5.0V
TP302
X-LAY
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48

NOTES

1.RESISTORS

Indicated in Ω,1/4W,1/8W, 5% tolarance unless otherwise noted

k:kΩ ,M:MΩ .

2.CAPACITORS

Indicated in capacity (μF)/voltage (V) unless otherwise noted p:pF.

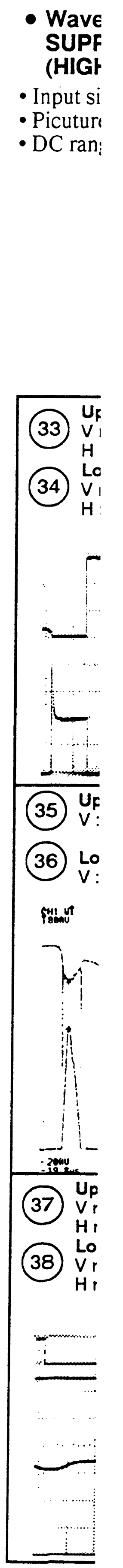
Indication without voltage is 50V except electrolytic capacitor.

:HSS104-02

3. F.B.T

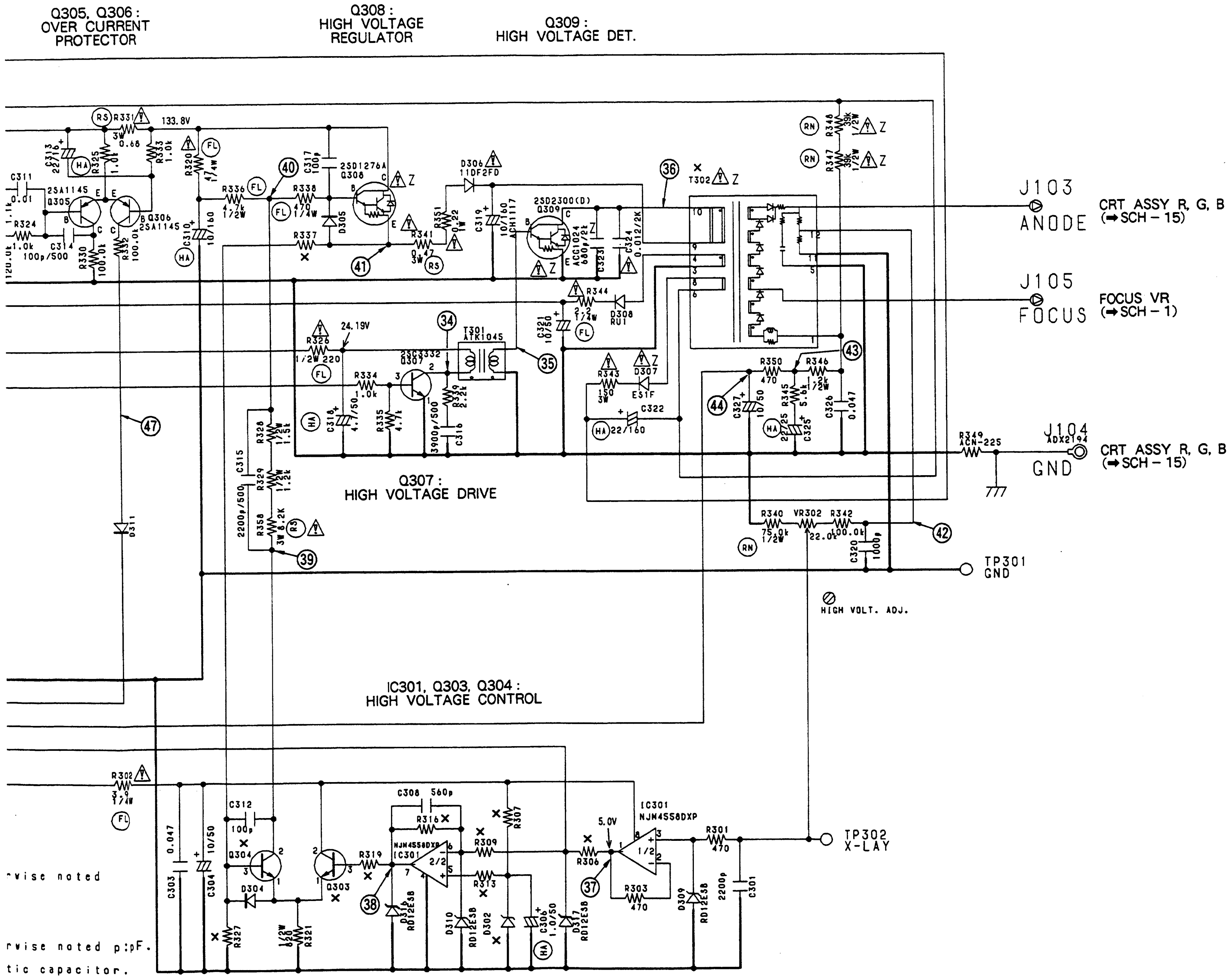
AWV1482-A ; Used ATK1094-A

AWV1497-A ; Used ATK1090-A



☆POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)
(AWV1500 : PRO-98)

- HIGH VOLTAGE BLOCK


Q305, Q306 :
OVER CURRENT PROTECTOR
Q308 :
HIGH VOLTAGE REGULATOR
Q309 :
HIGH VOLTAGE DET.
Q307 :
HIGH VOLTAGE DRIVE
IC301, Q303, Q304 :
HIGH VOLTAGE CONTROL
J103
ANODE
CRT ASSY R, G, B
(➡SCH – 15)
J105
FOCUS
FOCUS VR
(➡SCH – 1)
J104
ADX2194
GND
CRT ASSY R, G, B
(➡SCH – 15)
TP301
GND
TP302
X-LAY
HIGH VOLT. ADJ.
T302
T301
ATK1045
IC301
NJM4558DXP
2SA1145
2SC1145
2SD1276A
2SD2300(D)
2SC3332
133.8V
24.19V
5.0V
R331
R333
R320
R324
R330
R336
R338
R337
R341
R351
R326
R334
R335
R328
R329
R358
R344
R343
R350
R346
R345
R347
R348
R349
ACN-225
R340
VR302
R342
R302
R316
R309
R307
R319
R306
R313
R303
R301
R327
R321
C311
C313
C314
C310
C317
C319
C324
C323
C318
C315
C316
C322
C327
C325
C326
C320
C312
C303
C304
C308
C306
C301
D305
D306
11DF2FD
D308
RU1
D307
ES1F
D311
D304
D310
D302
D309
D317
RD12ESB
ACH1117
ACC1024
Q305
Q306
Q308
Q309
Q307
Q304
Q303
33
34
35
36
37
38
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41
42
43
44
47

-wise noted

-rwise noted p:pF.

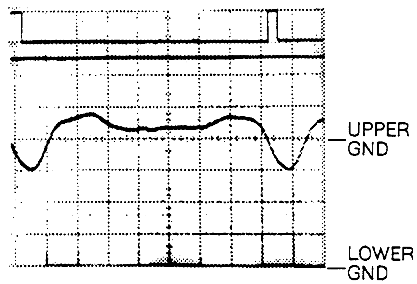
-tic capacitor.

POWER SUPPLY
ASSY (3/3)

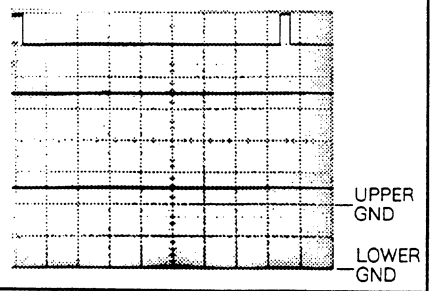
SCH-14

- **Waveformes at POWER SUPPLY ASSY (HIGH VOLTAGE BLOCK)**
- Input signal : Color bar
- Picuture quality : standard
- DC range (Unless otherwise noted.)

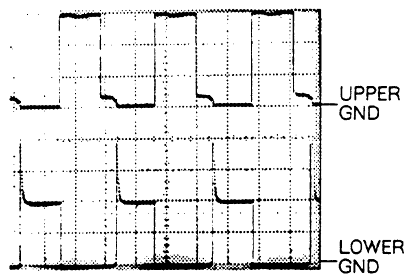
㊲ **Upper : IC301 Pin 1**
V range : 2V/div.
H range : 2msec/div.
㊴ **Lower : Q304 Collector**
V range : 20V/div.
H range : 2msec/div.



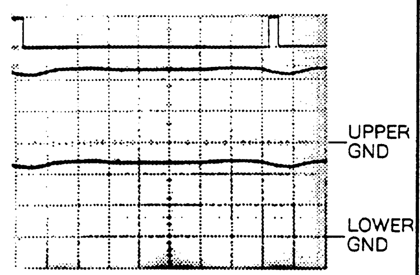
㊺ **Upper : C321 + side**
V range : 10V/div.
H range : 2msec/div.
㊻ **Lower : TP. X-RAY ADJ**
V range : 2V/div.
H range : 2msec/div.



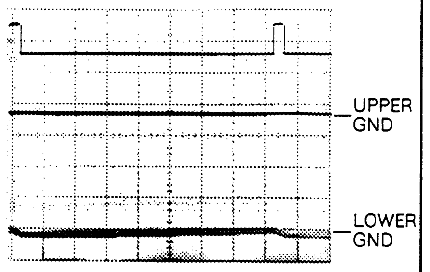
㉝ **Upper : Lead wire of R334**
V range : 1V/div.
H range : 20 μsec/div.
㉞ **Lower : Q307 Collector**
V range : 20V/div.
H range : 20 μsec/div.



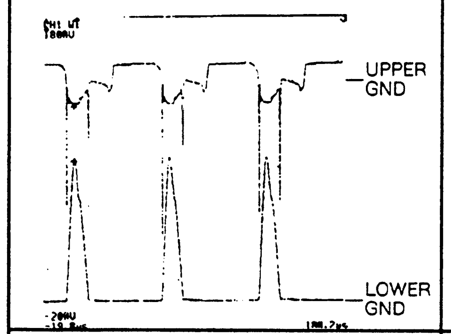
㊵ **Upper : Between R336 and R338**
V range : 50V/div.
H range : 2msec/div.
㊶ **Lower : Q308 Collector**
V range : 50V/div.
H range : 2msec/div.



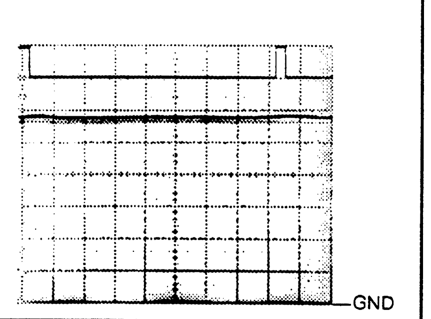
㊼-1 **Upper : D311 Anode**
V range : 1V/div.
H range : 2msec/div.
㊽-1 **Lower : D312 Anode**
V range : 0.1V/div.
H range : 2msec/div.



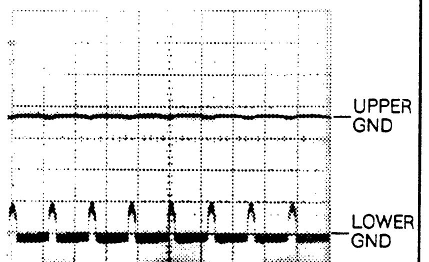
㉟ **Upper : Q309 Base**
V : 2V/div. H : 20 μsec/div.
㊱ **Lower : Q309 Collector**
V : 200V/div. H : 20 μsec/div.



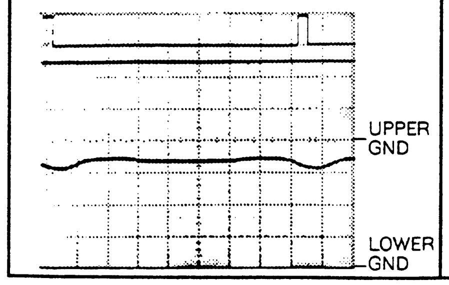
㊷ **T302 Pin 12**
V range : 2V/div.
H range : 2msec/div.



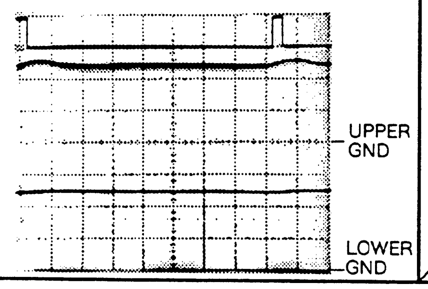
㊼-2 **Upper : D311 Anode**
V range : 1V/div.
H range : 50 μsec/div.
㊽-2 **Lower : D312 Anode**
V range : 0.1V/div.
H range : 50 μsec/div.



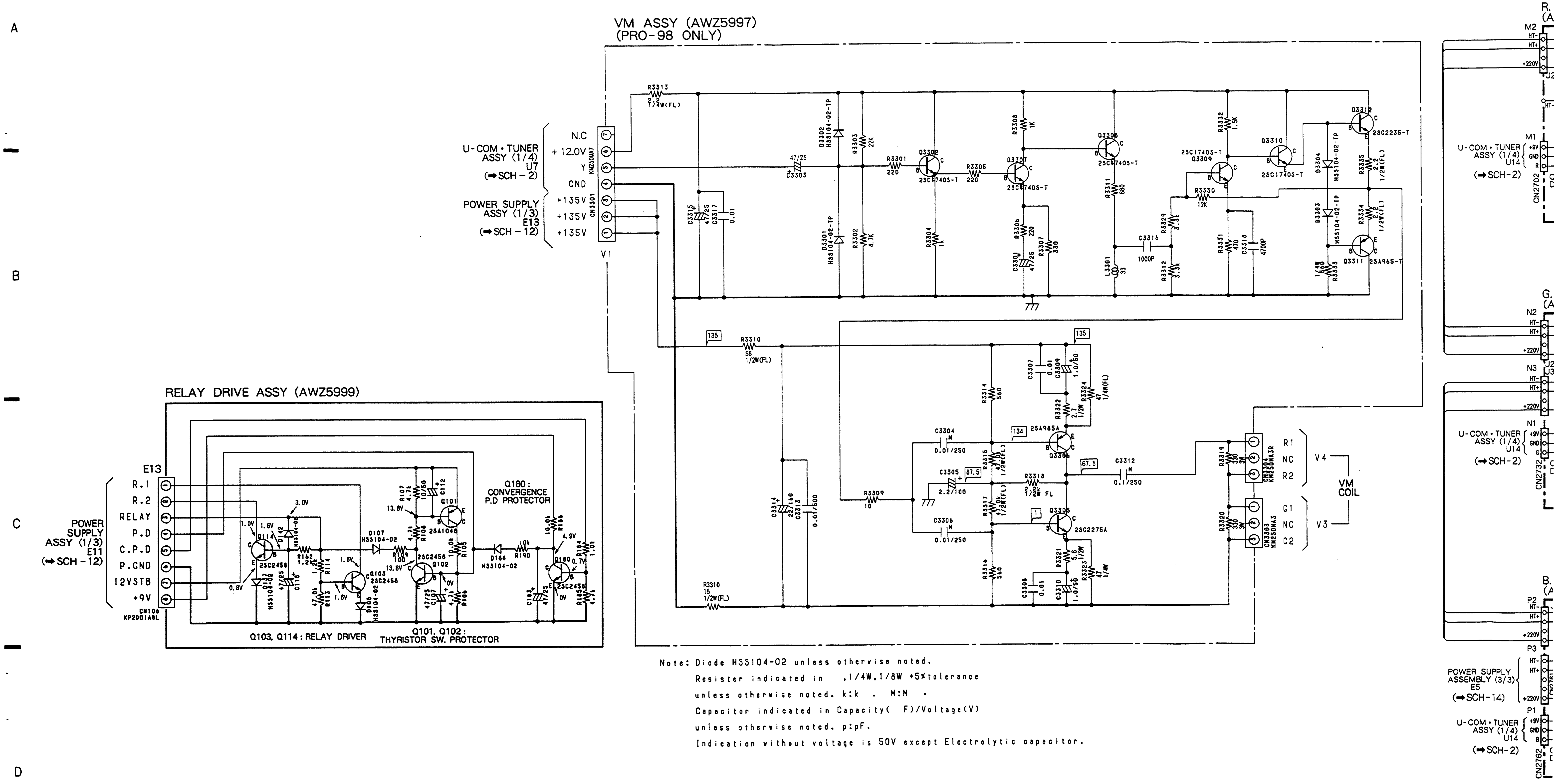
㊲ **Upper : IC301 Pin 1**
V range : 2V/div.
H range : 2msec/div.
㊳ **Lower : IC301 Pin 7**
V range : 2V/div.
H range : 2msec/div.



㊸ **Upper : Between R346 and R350**
V range : 5V/div.
H range : 2msec/div.
㊹ **Lower : C327 + side**
V range : 5V/div.
H range : 2msec/div.

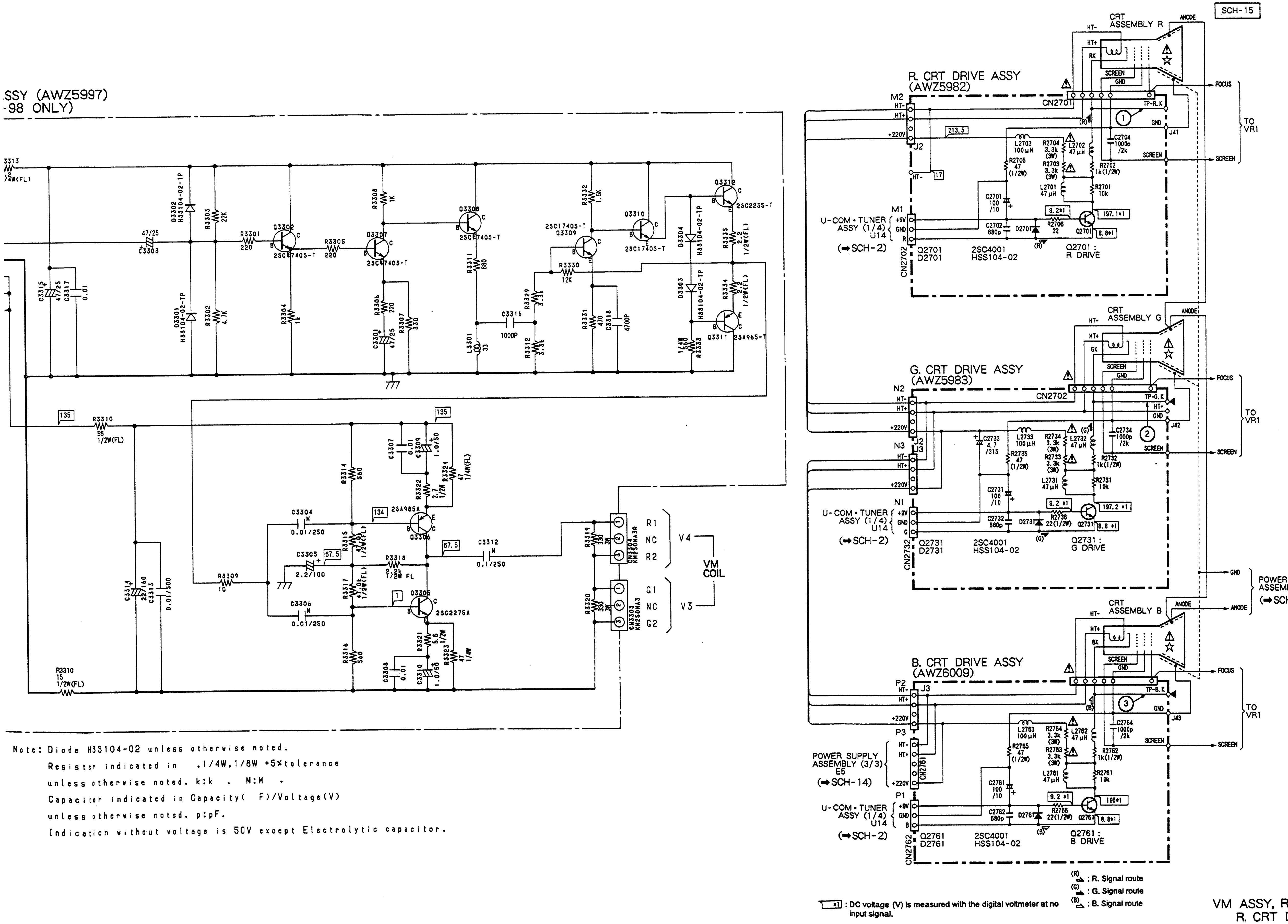


7.15 VM, RELAY DRIVE ASSY, R,G,B CRT DRIVE ASSEMBLIES


A
B
C
D
VM ASSY (AWZ5997)
(PRO-98 ONLY)
U-COM • TUNER ASSY (1/4) U7 (➡SCH-2)
POWER SUPPLY ASSY (1/3) E13 (➡SCH-12)
N.C
+12.0V
Y
GND
+135V
+135V
+135V
CN3301 KM250NA7
V1
R3313 2.2 1/4W(FL)
D3302 HSS104-02-TP
D3301 HSS104-02-TP
R3303 22K
R3302 4.7K
C3315 47/25
C3317 0.01
47/25 C3303
R3301 220
Q3302 2SC1740S-T
R3305 220
Q3307 2SC1740S-T
R3304 1K
R3308 1K
R3306 220
C3301 47/25
R3307 330
Q3308 2SC1740S-T
R3311 680
L3301 33
C3318 1000P
R3329 3.3K
R3312 3.3K
R3332 1.5K
2SC1740S-T Q3309
R3330 12K
R3331 470
C3316 4700P
Q3310 2SC1740S-T
Q3312 2SC2235-T
D3304 HSS104-02-TP
D3303 HSS104-02-TP
R3335 2.2 1/2W(FL)
R3334 2.2 1/2W(FL)
R3333 560 1/4W
Q3311 2SA965-T
135
R3310 56 1/2W(FL)
C3307 0.01
C3309 1.0/50
R3314 560
R3322 2.7 1/2W
R3324 47 1/4W(FL)
C3304 0.01/250
134 2SA985A Q3306
C3305 67.5 2.2/100
R3315 4.7K 1/2W(FL)
R3318 3.3K 1/2W FL
67.5
C3312 0.1/250
R3309 10
C3314 22/160
C3313 0.01/500
C3306 0.01/250
R3317 4.7K 1/2W(FL)
1
Q3305 2SC2275A
R3316 560
R3321 5.6 1/2W
R3323 47 1/4W
C3308 0.01
C3310 1.0/50
R3310 15 1/2W(FL)
R3319 330 3W
R3320 330 3W
CN3304 KM250NA3R
CN3303 KM250NA3
R1
NC
R2
G1
NC
G2
V4
V3
VM COIL
RELAY DRIVE ASSY (AWZ5999)
POWER SUPPLY ASSY (1/3) E11 (➡SCH-12)
E13
R.1
R.2
RELAY
P.D
C.P.D
P.GND
12VSTB
+9V
CN106 KP200IA8L
Q114 2SC2458
D142 HSS104-02
D113 HSS104-02
C113 47/25
R162 1.2K
R114
R113 47.0K
Q103 2SC2458
D108 HSS104-02
D107 HSS104-02
R109 100
R107 4.7K
C112 10/50
R108 4.7K
Q101 2SA1048
Q102 2SC2458
C107 47/25
R106 4.7K
R105 10.0K
D188 HSS104-02
R190 10K
Q180: CONVERGENCE P.D PROTECTOR
R186 10.0K
R184 1.0K
Q180 2SC2458
C183 47/25
R185 4.7K
3.0V
1.0V
1.6V
0.8V
1.6V
1.6V
13.8V
13.8V
0V
4.9V
0.7V
0V
Q103, Q114 : RELAY DRIVER
Q101, Q102 : THYRISTOR SW. PROTECTOR
R. (A
M2
HT-
HT+
+220V
J2
M1
U-COM • TUNER ASSY (1/4) U14 (➡SCH-2)
+9V
GND
R
CN2702
G. (A
N2
N3
N1
U-COM • TUNER ASSY (1/4) U14 (➡SCH-2)
G
CN2732
B. (A
P2
P3
POWER SUPPLY ASSEMBLY (3/3) E5 (➡SCH-14)
P1
U-COM • TUNER ASSY (1/4) U14 (➡SCH-2)
B
CN2762

Note: Diode HSS104-02 unless otherwise noted.
Resister indicated in ,1/4W,1/8W +5%tolerance
unless otherwise noted. k:k . M:M .
Capacitor indicated in Capacity(F)/Voltage(V)
unless otherwise noted. p:pF.
Indication without voltage is 50V except Electrolytic capacitor.

▭ : DC voltage (V) is me
input signal.


SCH-15
SSY (AWZ5997)
-98 ONLY)
R. CRT DRIVE ASSY
(AWZ5982)
G. CRT DRIVE ASSY
(AWZ5983)
B. CRT DRIVE ASSY
(AWZ6009)
CRT ASSEMBLY R
CRT ASSEMBLY G
CRT ASSEMBLY B
ANODE
FOCUS
SCREEN
TO VR1
POWER SUPPLY ASSEMBLY (3/3)
(➡SCH-14)
U-COM • TUNER ASSY (1/4) U14
(➡SCH-2)
POWER SUPPLY ASSEMBLY (3/3) E5
(➡SCH-14)
CN2701
CN2702
CN2702
CN2732
CN2761
CN2762
Q2701 D2701 2SC4001 HSS104-02
Q2701 : R DRIVE
Q2731 D2731 2SC4001 HSS104-02
Q2731 : G DRIVE
Q2761 D2761 2SC4001 HSS104-02
Q2761 : B DRIVE
TP-R.K
TP-G.K
TP-B.K
J41
J42
J43
V4
V3
VM COIL
R1 NC R2
G1 NC G2
CN3304 KM250NA3R
CN3303 KM250NA3
Q3302 2SC1740S-T
Q3307 2SC1740S-T
Q3308 2SC1740S-T
Q3309 2SC1740S-T
Q3310 2SC1740S-T
Q3312 2SC2235-T
Q3311 2SA965-T
Q3306 2SA985A
Q3305 2SC2275A
D3301 HSS104-02-TP
D3302 HSS104-02-TP
D3303 HSS104-02-TP
D3304 HSS104-02-TP
135
134
67.5
1
213.5
17
9.2 *1
197.1 *1
8.8 *1
197.2 *1
196 *1

(R) : R. Signal route

(G) : G. Signal route

(B) : B. Signal route

*1 : DC voltage (V) is measured with the digital voltmeter at no input signal.

Note: Diode HSS104-02 unless otherwise noted.

Resister indicated in ,1/4W,1/8W +5%tolerance

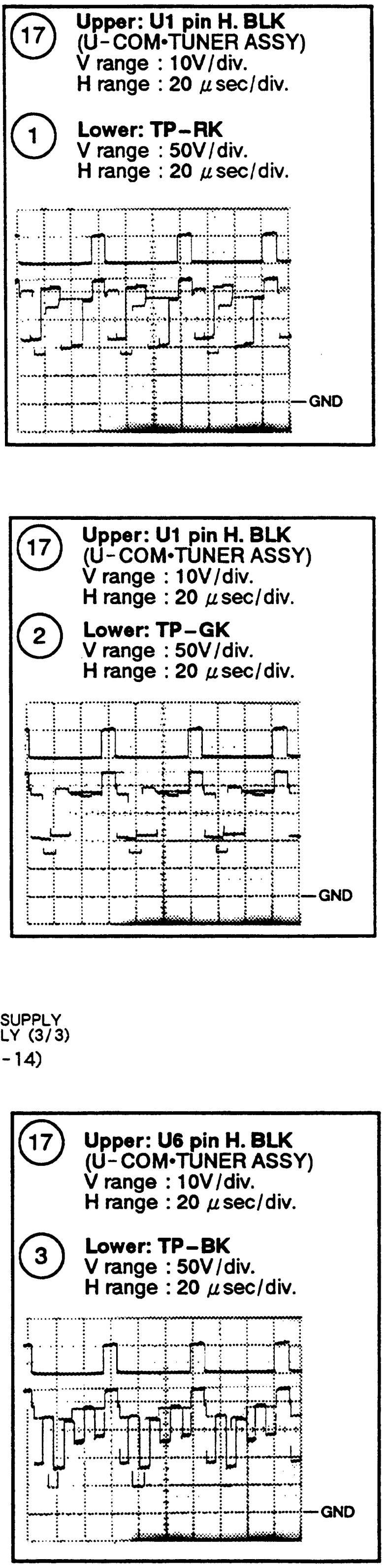
unless otherwise noted. k:k . M:M .

Capacitor indicated in Capacity(F)/Voltage(V)

unless otherwise noted. p:pF.

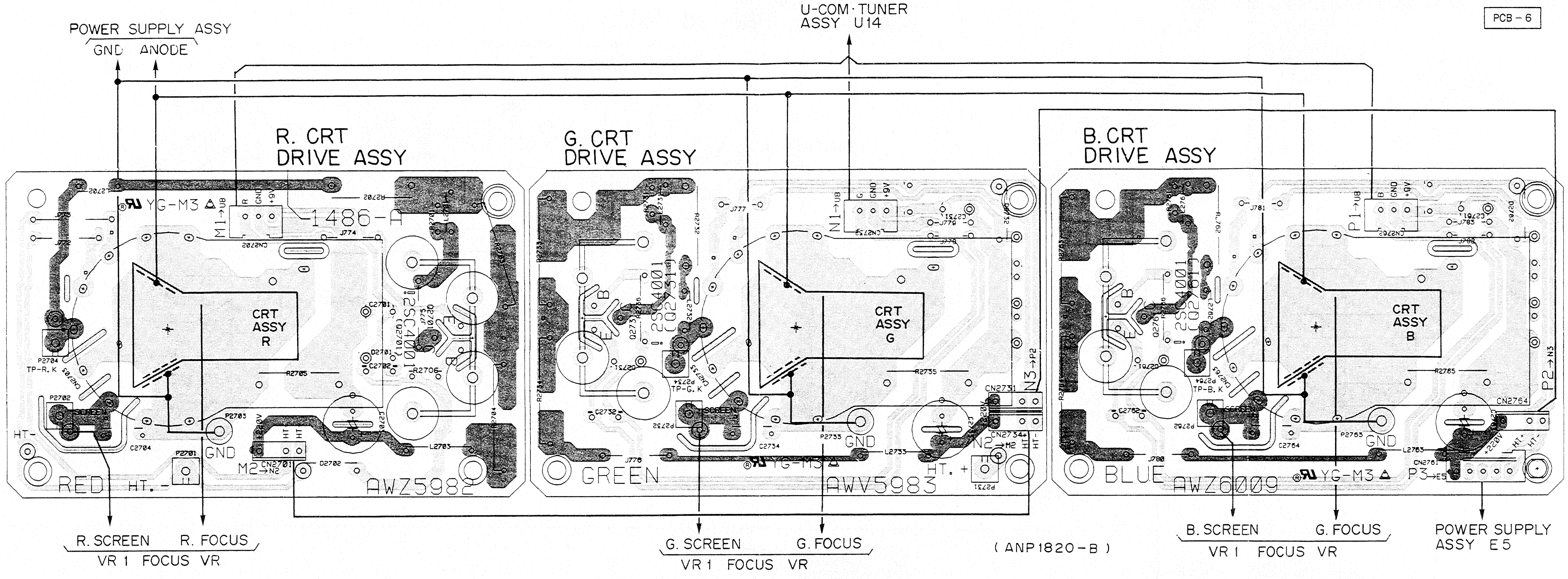
Indication without voltage is 50V except Electrolytic capacitor.

- **Waveformes**
- Input signal : Color bar
- Picture quqlity : standard
- Range : DC range (without notice)

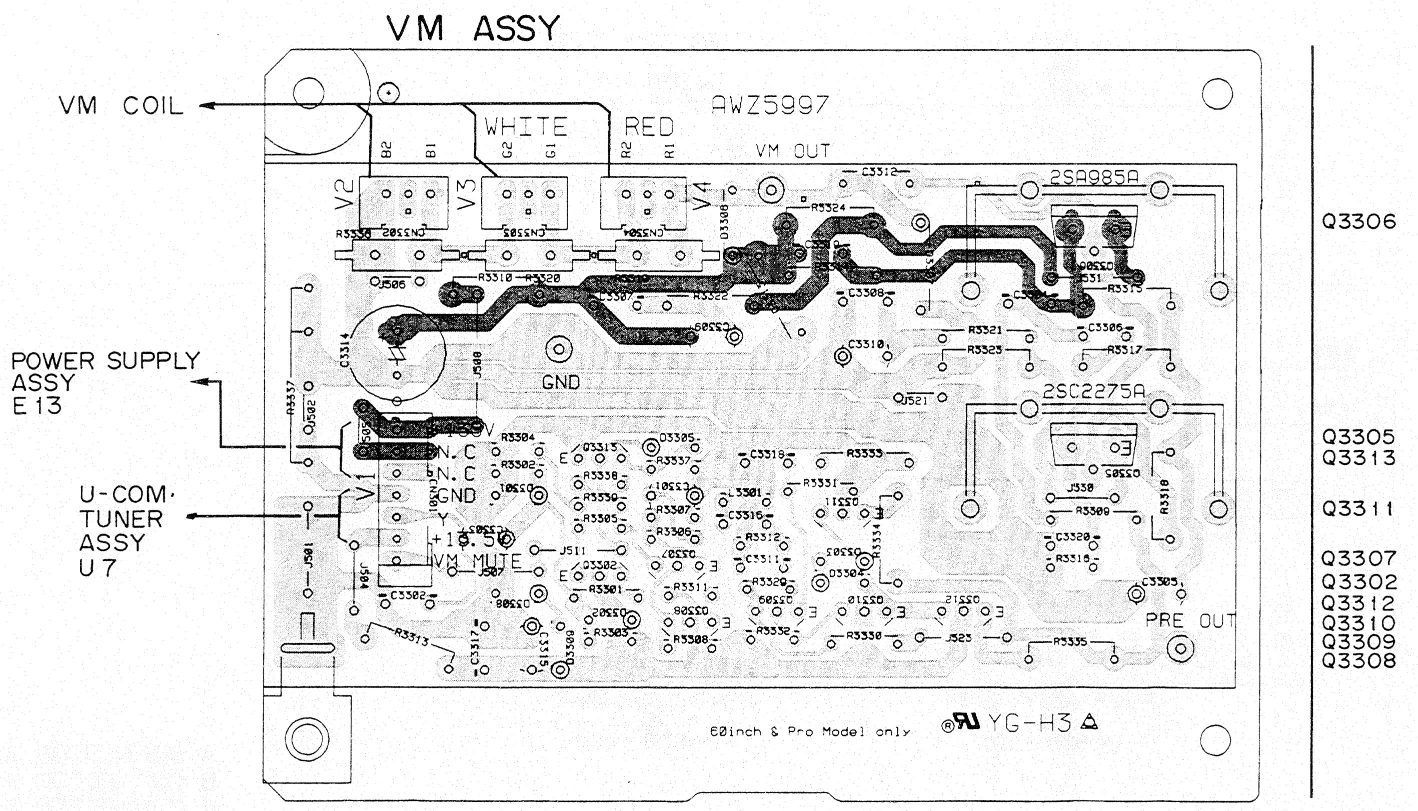


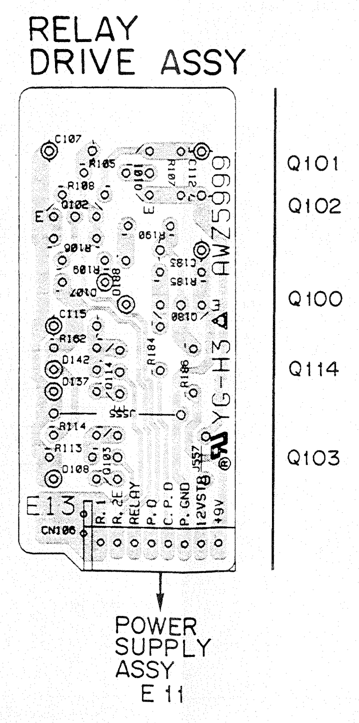
VM ASSY, RELAY ASSY,
R. CRT DRIVE ASSY,
G. CRT DRIVE ASSY,
B. CRT DRIVE ASSY

SCH-15


POWER SUPPLY ASSY
GND ANODE
U-COM·TUNER ASSY U14
R. CRT DRIVE ASSY
G. CRT DRIVE ASSY
B. CRT DRIVE ASSY
CRT ASSY R
CRT ASSY G
CRT ASSY B
1486-A
YG-M3
RED
GREEN
BLUE
AWZ5982
AWV5983
AWZ6009
SCREEN
GND
HT.
M1→U8
M2→N2
N1→U8
N2→M2
N3→P2
P1→U8
P2→N3
P3→E5
2SC4001
2SD1631
R. SCREEN
R. FOCUS
VR 1 FOCUS VR
G. SCREEN
G. FOCUS
VR 1 FOCUS VR
B. SCREEN
G. FOCUS
VR 1 FOCUS VR
POWER SUPPLY ASSY E5

(ANP1820 – B)


VM ASSY
VM COIL
AWZ5997
WHITE
RED
VM OUT
V2
V3
V4
V1
2SA985A
2SC2275A
GND
POWER SUPPLY ASSY E13
U-COM· TUNER ASSY U7
N.C
N.C
GND
+10.5V
VM MUTE
PRE OUT
60inch & Pro Model only
YG-H3
Q3306
Q3305
Q3313
Q3311
Q3307
Q3302
Q3312
Q3310
Q3309
Q3308


RELAY DRIVE ASSY
AWZ5999
YG-H3
E13
Q101
Q102
Q100
Q114
Q103
POWER SUPPLY ASSY E11

(ANP 1822 – A)

- This diagram is viewed from the mounted parts side.

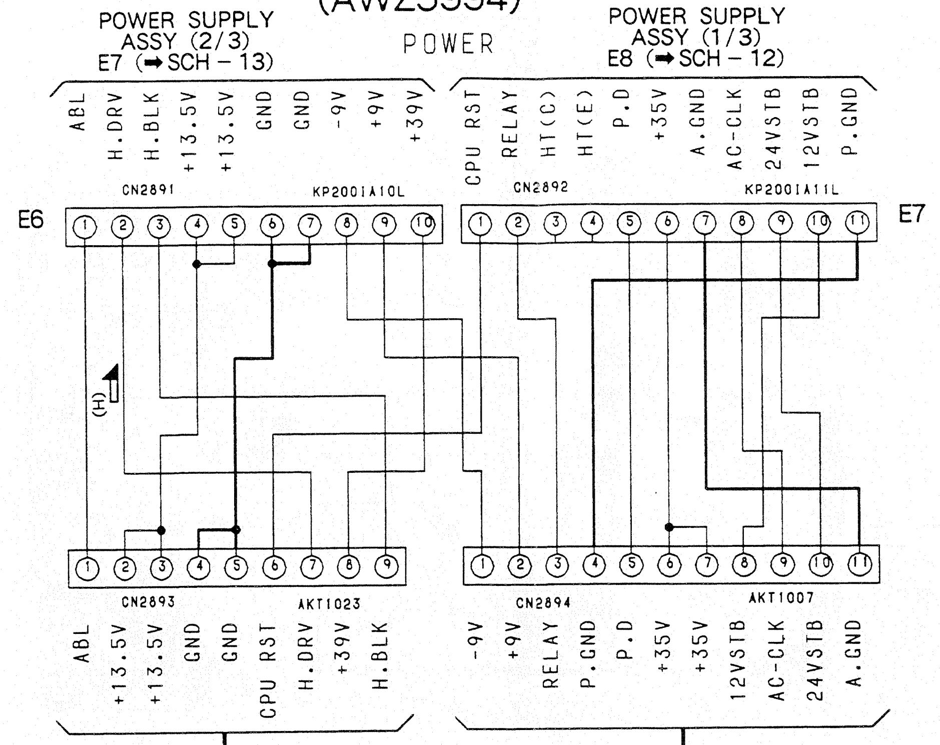
▨ mark shows a high voltage generation point (excepting the charged section).

7.16 A, B, C CONNECTOR AND PRO S.G ASSEMBLIES

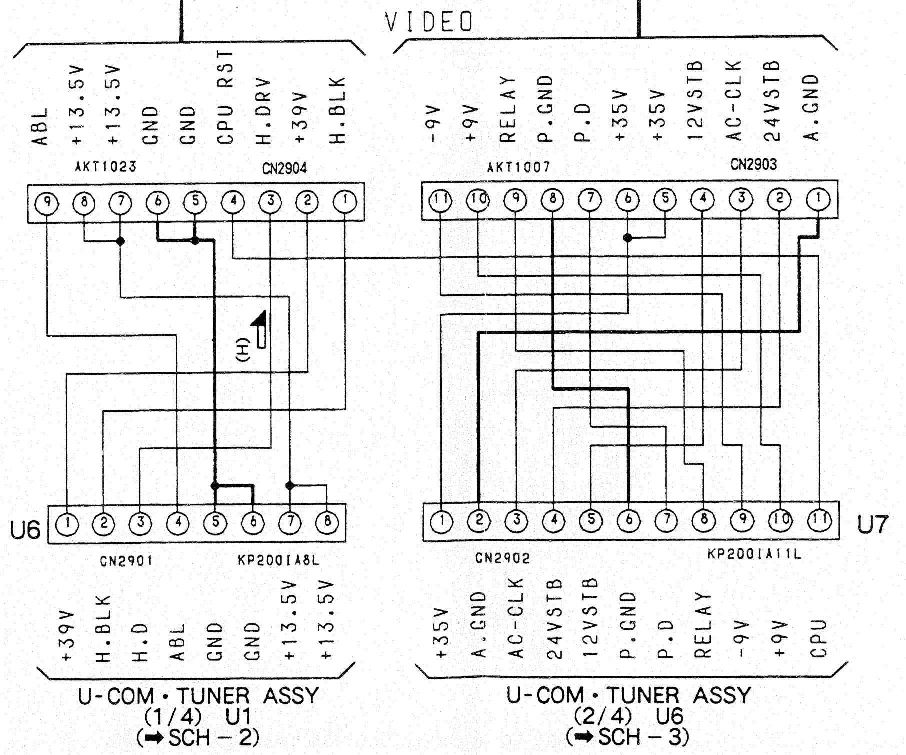
(H) : H. Deflection signal route

SCH - 16

A CONNECTOR ASSY
(AWZ5994)


POWER SUPPLY ASSY (2/3) E7 (➡SCH - 13)
POWER
POWER SUPPLY ASSY (1/3) E8 (➡SCH - 12)
ABL
H.DRV
H.BLK
+13.5V
+13.5V
GND
GND
-9V
+9V
+39V
CPU RST
RELAY
HT(C)
HT(E)
P.D
+35V
A.GND
AC-CLK
24VSTB
12VSTB
P.GND
CN2891
KP200IA10L
CN2892
KP200IA11L
E6
E7
(H)
CN2893
AKT1023
CN2894
AKT1007
ABL
+13.5V
+13.5V
GND
GND
CPU RST
H.DRV
+39V
H.BLK
-9V
+9V
RELAY
P.GND
P.D
+35V
+35V
12VSTB
AC-CLK
24VSTB
A.GND

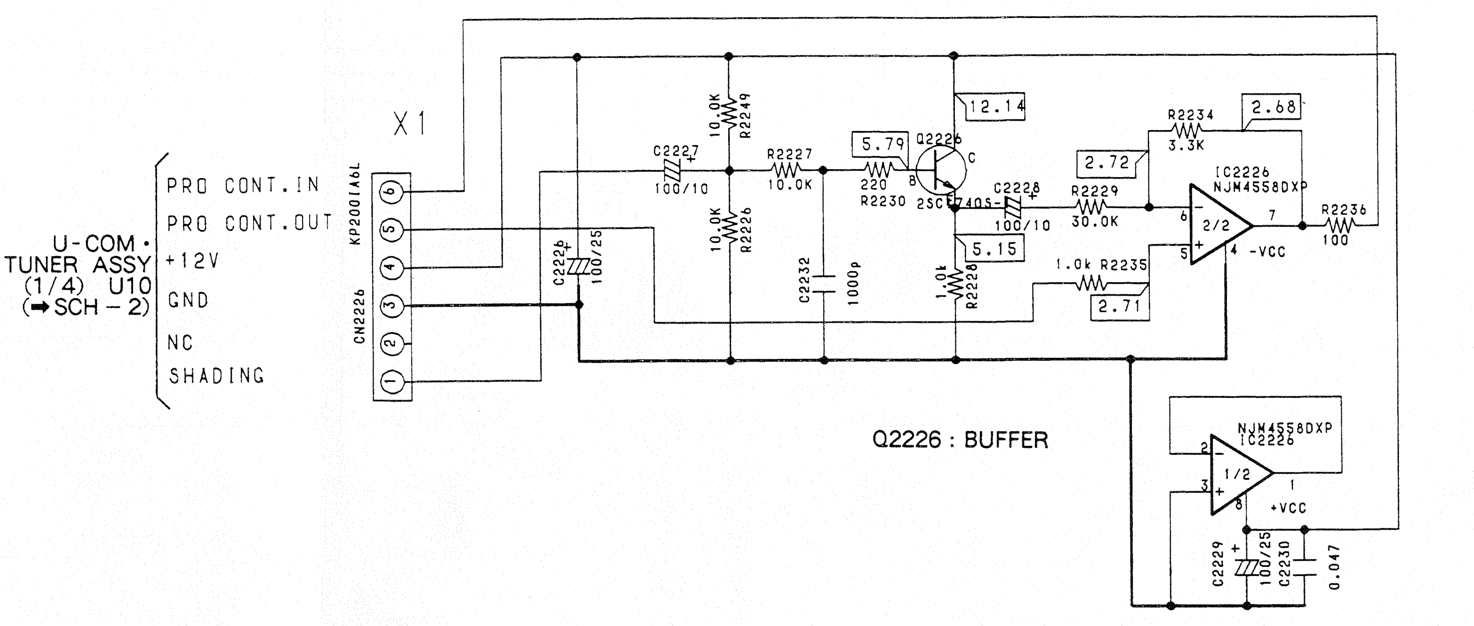
B CONNECTOR ASSY
(AWZ5995)


VIDEO
ABL
+13.5V
+13.5V
GND
GND
CPU RST
H.DRV
+39V
H.BLK
-9V
+9V
RELAY
P.GND
P.D
+35V
+35V
12VSTB
AC-CLK
24VSTB
A.GND
AKT1023
CN2904
AKT1007
CN2903
(H)
U6
U7
CN2901
KP200IA8L
CN2902
KP200IA11L
+39V
H.BLK
H.D
ABL
GND
GND
+13.5V
+13.5V
+35V
A.GND
AC-CLK
24VSTB
12VSTB
P.GND
P.D
RELAY
-9V
+9V
CPU

U-COM・TUNER ASSY
(1/4) U1
(➡SCH - 2)

U-COM・TUNER ASSY
(2/4) U6
(➡SCH - 3)

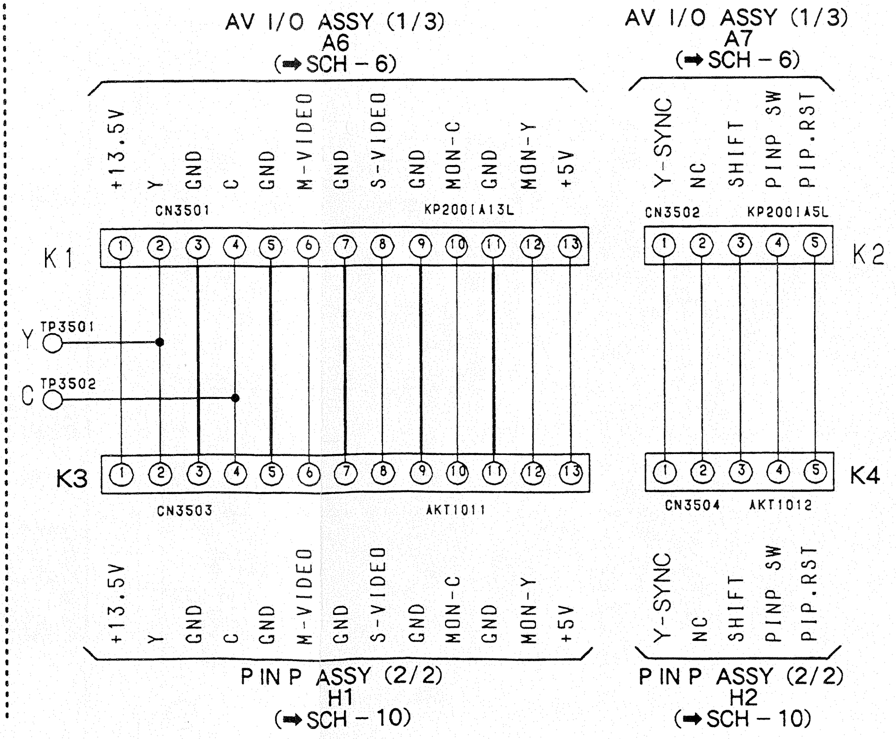
PRO S.G ASSY
(AWZ6005) (PRO-98 ONLY)


X1
U-COM・TUNER ASSY (1/4) U10 (➡SCH - 2)
PRO CONT.IN
PRO CONT.OUT
+12V
GND
NC
SHADING
KP200IA6L
CN2226
C2227
100/10
C2226
100/25
10.0K
R2249
10.0K
R2226
R2227
10.0K
C2232
1000p
5.79
220
R2230
Q2226
2SC 740S
B
C
12.14
5.15
1.0k
R2228
C2228
100/10
R2229
30.0K
2.72
R2234
3.3K
2.68
IC2226
NJM4558DXP
2/2
-VCC
R2236
100
1.0k R2235
2.71
NJM4558DXP
IC2226
1/2
+VCC
C2229
100/25
C2230
0.047

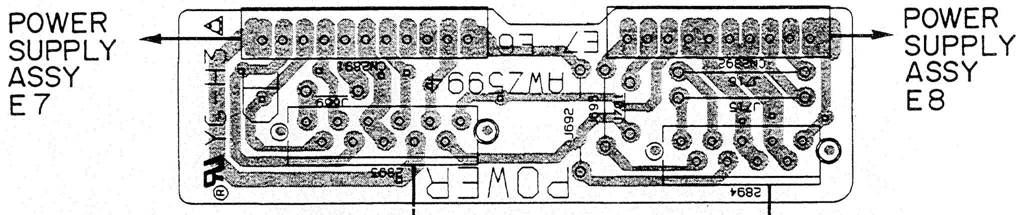
Q2226 : BUFFER

IC2226 :
CONTRAST CONTROLLER

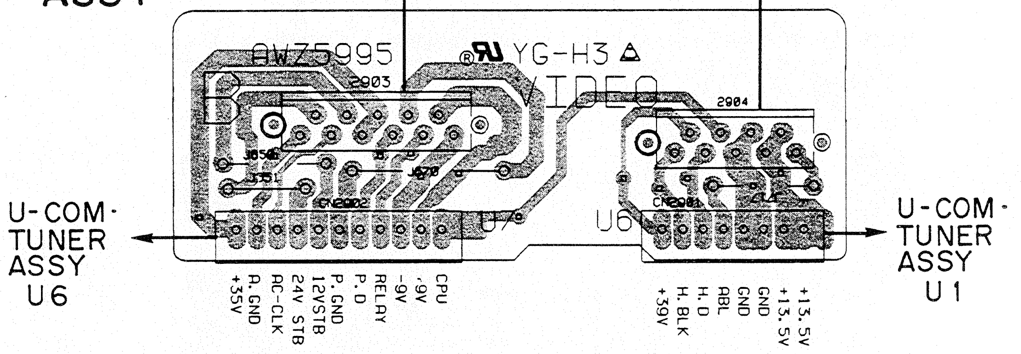
C CONNECTOR ASSY
(AWZ5996)


AV I/O ASSY (1/3) A6 (➡SCH - 6)
AV I/O ASSY (1/3) A7 (➡SCH - 6)
+13.5V
Y
GND
C
GND
M-VIDEO
GND
S-VIDEO
GND
MON-C
GND
MON-Y
+5V
Y-SYNC
NC
SHIFT
PINP SW
PIP.RST
CN3501
KP200IA13L
CN3502
KP200IA5L
K1
K2
Y TP3501
C TP3502
K3
K4
CN3503
AKT1011
CN3504
AKT1012
+13.5V
Y
GND
C
GND
M-VIDEO
GND
S-VIDEO
GND
MON-C
GND
MON-Y
+5V
Y-SYNC
NC
SHIFT
PINP SW
PIP.RST
P IN P ASSY (2/2) H1 (➡SCH - 10)
P IN P ASSY (2/2) H2 (➡SCH - 10)

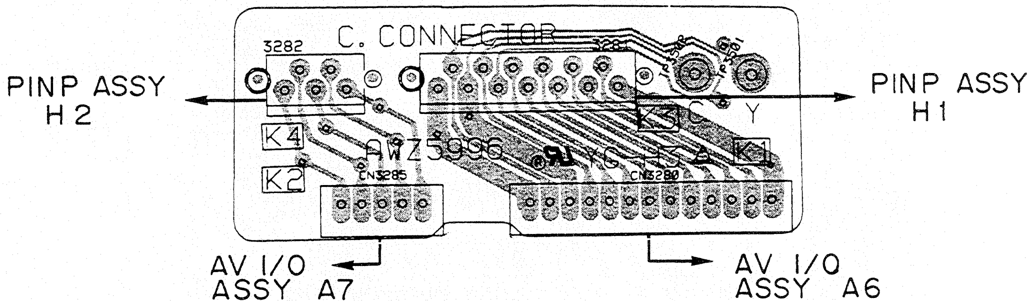
A CONNECTOR ASSY


POWER SUPPLY ASSY E7
POWER SUPPLY ASSY E8
AWZ5994
YG-H3
CN2891
CN2892
J692
J695
2893
2894
POWER
E7, E8

B CONNECTOR ASSY

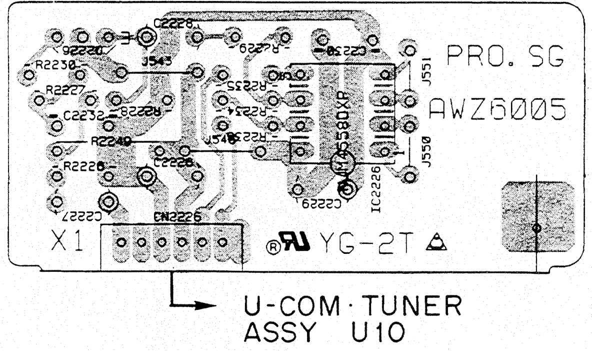

AWZ5995
YG-H3
VIDEO
2903
2904
CN2902
CN2901
U7
U6
U-COM·TUNER ASSY U6
U-COM·TUNER ASSY U1
CPU
+9V
-9V
RELAY
P.D
P.GND
12VSTB
24V STB
AC-CLK
A.GND
+35V
+13.5V
+13.5V
GND
GND
ABL
H.D
H.BLK
+39V

C CONNECTOR ASSY


C. CONNECTOR
3282
AWZ5996
YG-H3
K1
K2
K3
K4
CN3285
CN3280
C
Y
PINP ASSY H2
PINP ASSY H1
AV I/O ASSY A7
AV I/O ASSY A6

(ANP1822 – A)

PRO S.G ASSY

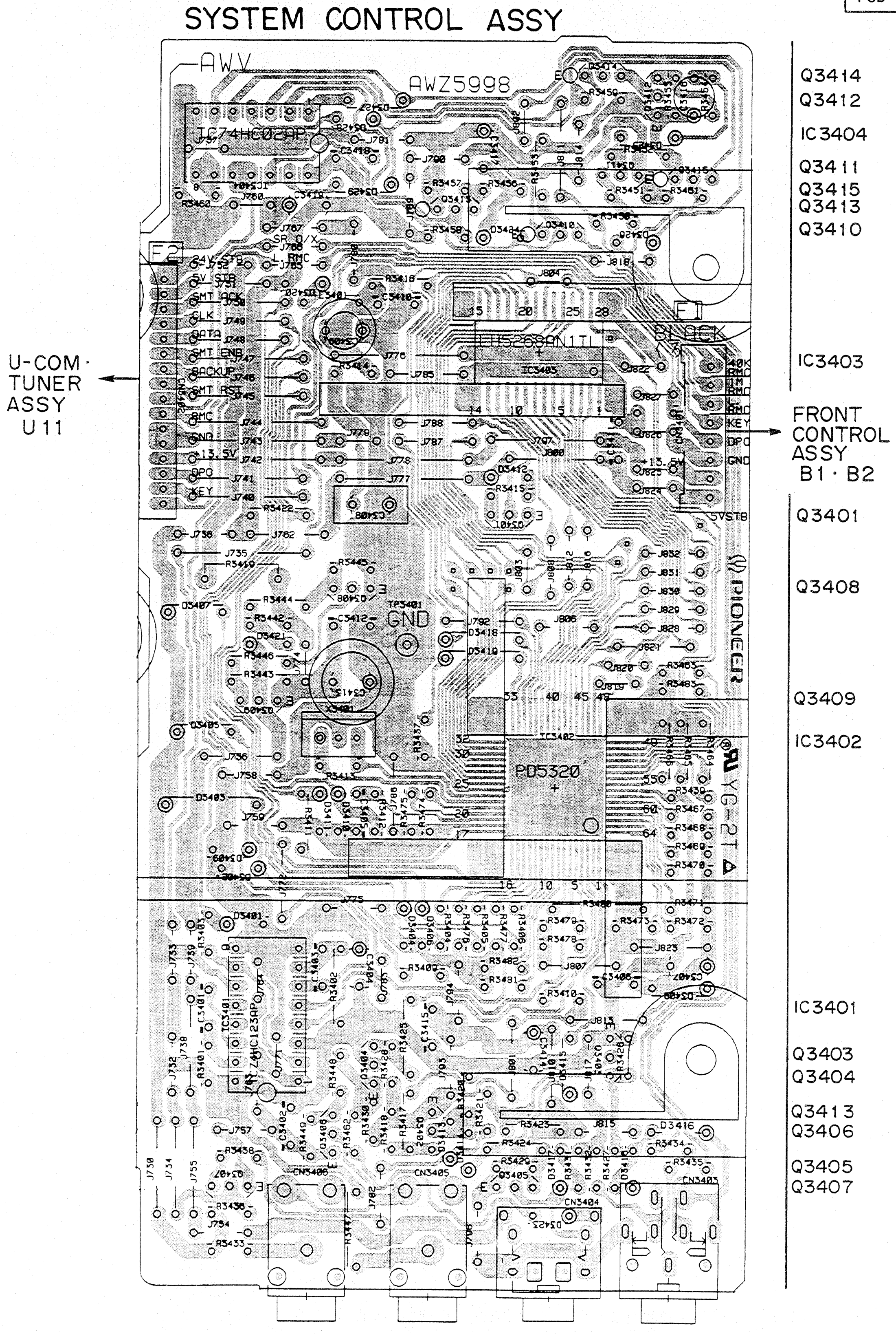

PRO. SG
AWZ6005
YG-2T
X1
CN2226
C2228
R2230
R2227
C2232
R2240
R2226
C2227
J543
J548
J550
J551
IC2226
U-COM·TUNER ASSY U10

(ANP1823 – A)

- This diagram is viewed from the mounted parts side.

7.17 SYSTEM CONTROL ASSY (SD-P5185-K AND PRO-98 ONLY)

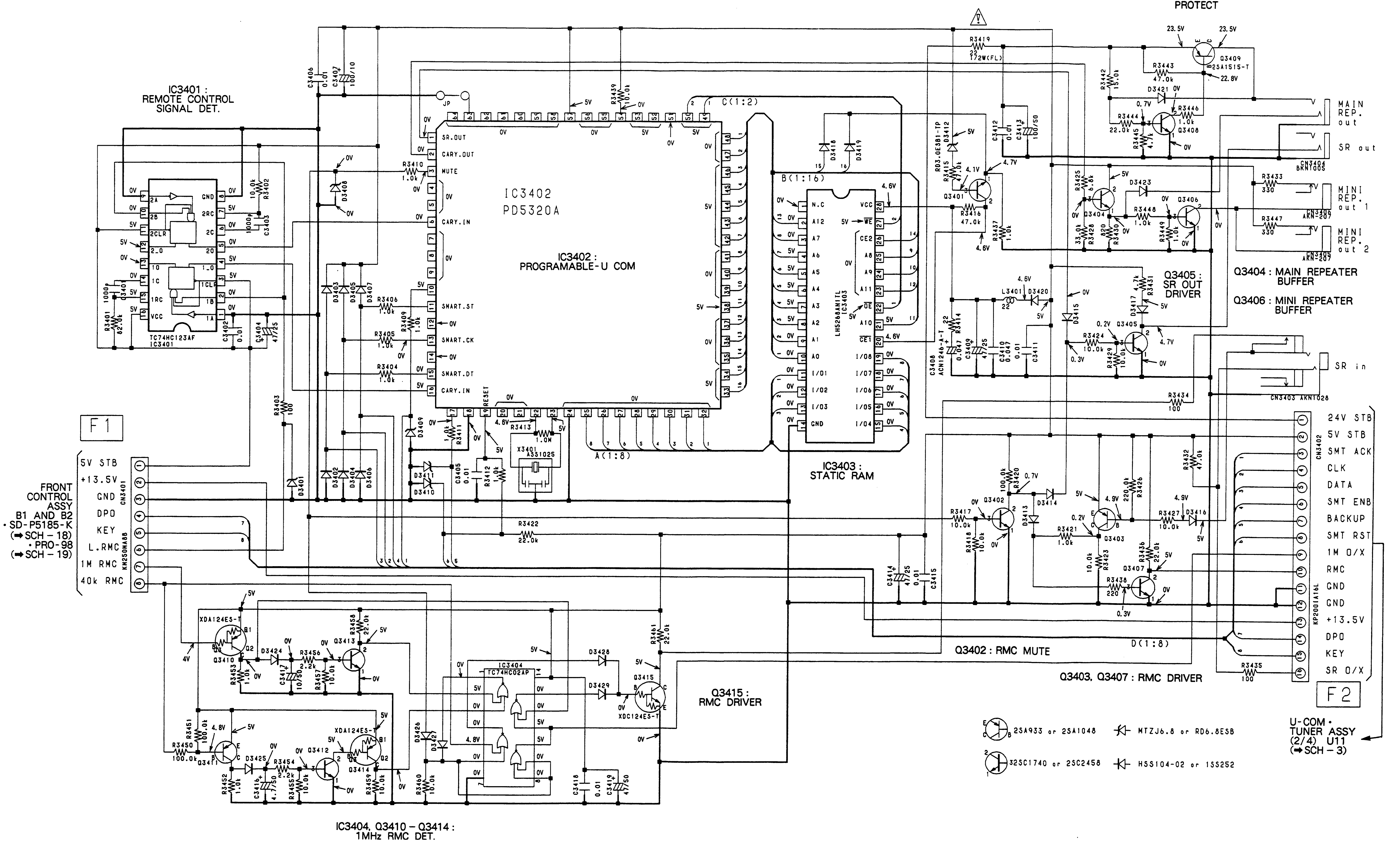
PCB – 8


SYSTEM CONTROL ASSY
AWV
AWZ5998
IC74HC02AP
LU5268AN1TL
IC3403
PD5320
IC3402
Z4HC123AP
IC3401
F2
F1
BLACK
24V STB
5V STB
SMT ACK
CLK
DATA
SMT ENB
BACKUP
SMT RST
RMC
GND
13.5V
DPO
KEY
40K
RMC
FM
RMC
KEY
DPO
GND
+13.5V
5VSTB
TP3401
GND
PIONEER
YG-2T
CN3406
CN3405
CN3404
CN3403
U-COM·
TUNER
ASSY
U11
FRONT
CONTROL
ASSY
B1 · B2
Q3414
Q3412
IC3404
Q3411
Q3415
Q3413
Q3410
IC3403
Q3401
Q3408
Q3409
IC3402
IC3401
Q3403
Q3404
Q3413
Q3406
Q3405
Q3407

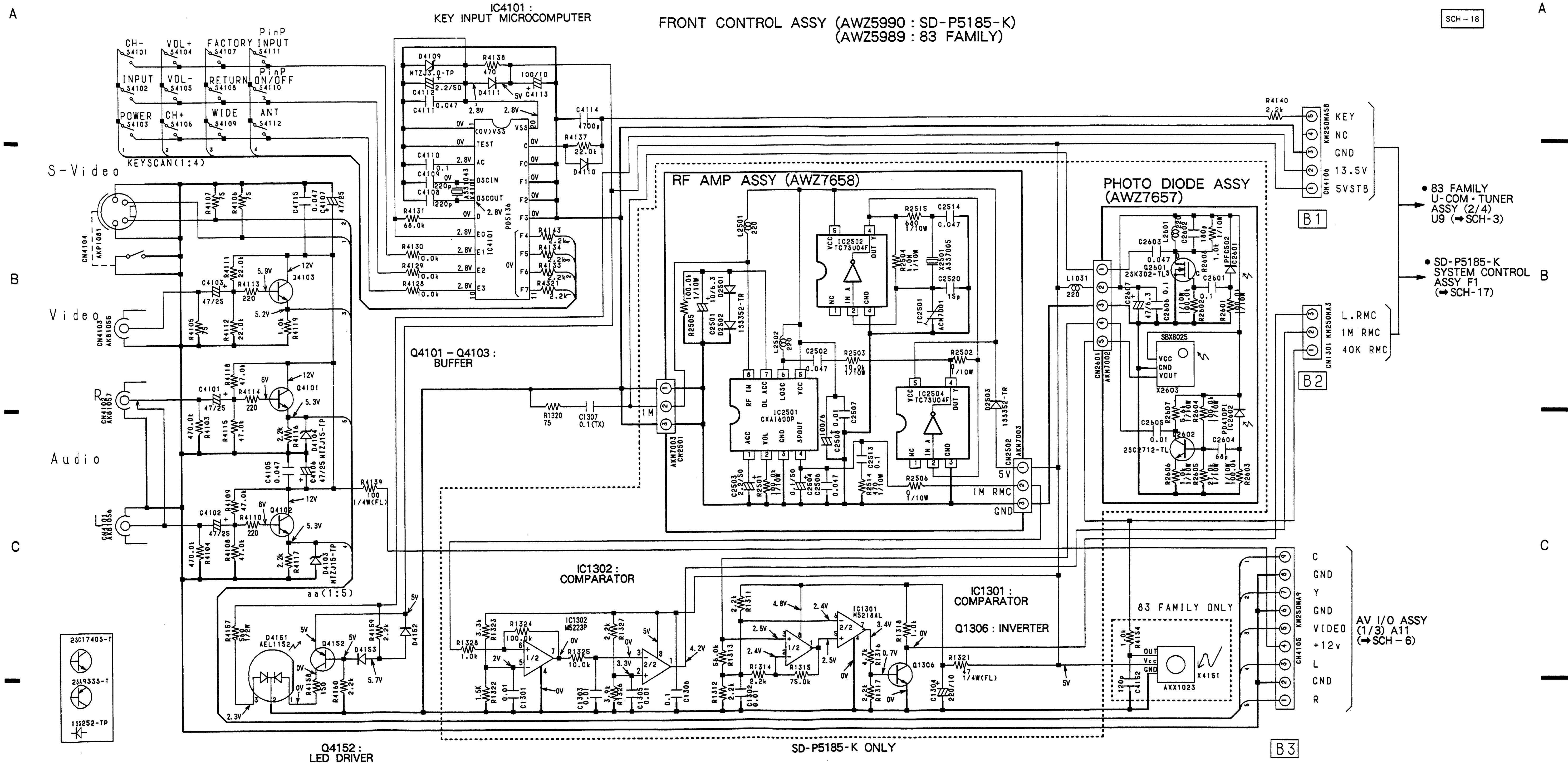
(ANP1821-B)

● This diagram is viewed from the mounted parts side.

SYSTEM CONTROL ASSY (AWZ5998)


Q3408, Q3409 : OVER CURRENT PROTECT
IC3401 : REMOTE CONTROL SIGNAL DET.
TC74HC123AF
IC3402
PD5320A
IC3402 : PROGRAMABLE-U COM
SR.OUT
CARY.OUT
MUTE
CARY.IN
SMART.ST
SMART.CK
SMART.DT
RESET
A(1:8)
B(1:16)
C(1:2)
IC3403 : STATIC RAM
LH5268ANITL
X3401 ASS1025
MAIN REP. out
SR out
MINI REP. out 1
MINI REP. out 2
SR in
CN3404 AKN1005
CN3405 AKN-207
CN3403 AKN1028
Q3405 : SR OUT DRIVER
Q3404 : MAIN REPEATER BUFFER
Q3406 : MINI REPEATER BUFFER
F1
FRONT CONTROL ASSY B1 AND B2
• SD-P5185-K (➡SCH – 18)
• PRO-98 (➡SCH – 19)
CN3401 KM250NA8
5V STB
+13.5V
GND
DPO
KEY
L.RMC
1M RMC
40k RMC
CN3402 KP200IA16L
24V STB
5V STB
SMT ACK
CLK
DATA
SMT ENB
BACKUP
SMT RST
1M O/X
RMC
GND
GND
+13.5V
DPO
KEY
SR O/X
F2
U-COM • TUNER ASSY (2/4) U11 (➡SCH – 3)
Q3402 : RMC MUTE
Q3403, Q3407 : RMC DRIVER
D(1:8)
IC3404 TC74HC02AP
Q3415 : RMC DRIVER
XDA124ES-T
XDC124ES-T
IC3404, Q3410 – Q3414 : 1MHz RMC DET.
2SA933 or 2SA1048
MTZJ6.8 or RD6.8ESB
2SC1740 or 2SC2458
HSS104-02 or 1SS252

7.18 FRONT CONTROL, RF AMP AND PHOTO DIODE ASSEMBLIES (FOR SD-P5185-K AND 83 FAMILY)


SCH-18
IC4101 : KEY INPUT MICROCOMPUTER
FRONT CONTROL ASSY (AWZ5990 : SD-P5185-K)
(AWZ5989 : 83 FAMILY)
CH- S4101
VOL+ S4104
FACTORY S4107
PinP INPUT S4111
INPUT S4102
VOL- S4105
RETURN S4108
PinP ON/OFF S4110
POWER S4103
CH+ S4106
WIDE S4109
ANT S4112
KEYSCAN(1:4)
S-Video
CN4104 AKP1081
Video
CN4103 AKB1055
R
CN4102 AKB1057
Audio
L
CN4101 AKB1056
Q4101 - Q4103 : BUFFER
RF AMP ASSY (AWZ7658)
IC2501 CXA1600P
IC2502 TC7SU04F
IC2504 TC7SU04F
X2501 A337005
PHOTO DIODE ASSY (AWZ7657)
Q2601 2SK302-TL5
Q2602 2SC2712-TL
SBX8025
X2603
PD410PI
CN4106 KM250NA5B
KEY
NC
GND
13.5V
5VSTB
B1
• 83 FAMILY U-COM・TUNER ASSY (2/4) U9 (➡SCH-3)
• SD-P5185-K SYSTEM CONTROL ASSY F1 (➡SCH-17)
CN1301 KM250NA3
L.RMC
1M RMC
40K RMC
B2
CN2501 AKM7003
CN2502 AKM7003
CN2601 AKM7002
1M RMC
5V
GND
IC1302 : COMPARATOR
IC1302 M5223P
IC1301 : COMPARATOR
IC1301 M5218AL
Q1306 : INVERTER
83 FAMILY ONLY
AXX1023
X4151
CN4105 KM250NA9
C
GND
Y
GND
VIDEO
+12v
L
GND
R
AV I/O ASSY (1/3) A11 (➡SCH-6)
Q4152 : LED DRIVER
D4151 AEL115Z
SD-P5185-K ONLY
B3
2SC1740S-T
2SA933S-T
1SS252-TP

PCB – 9

● This diagram is viewed from the mounted parts side.

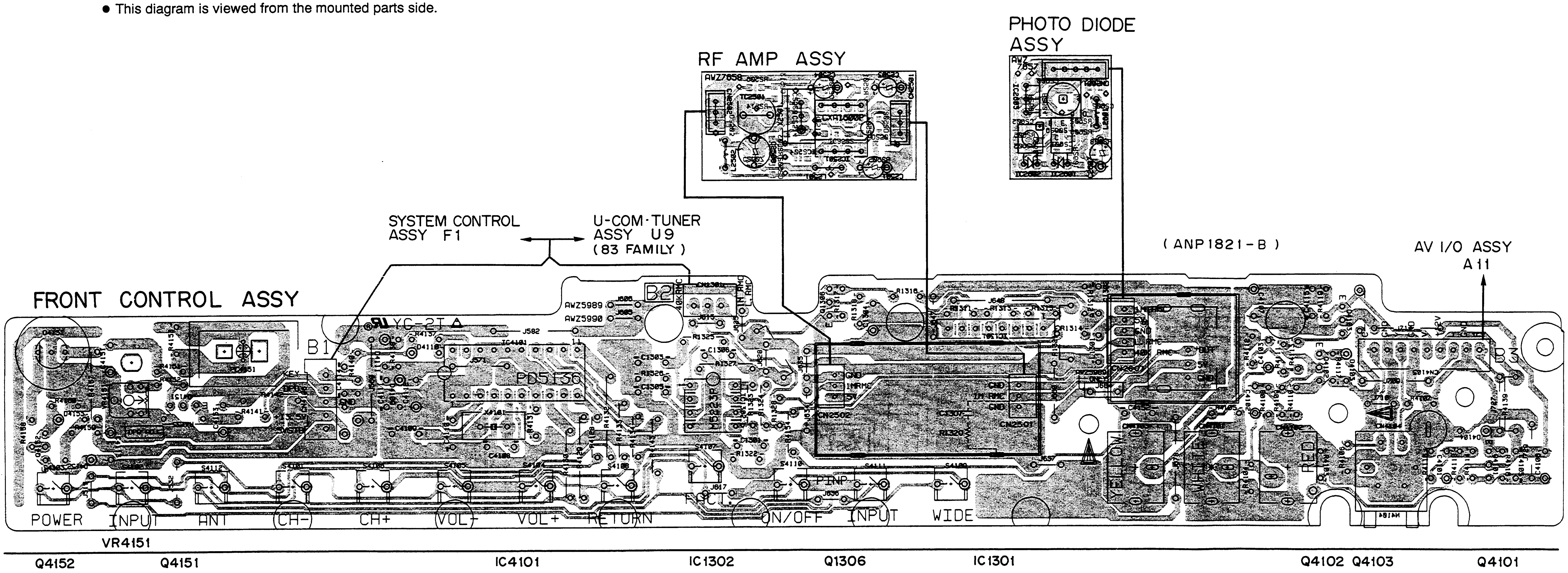
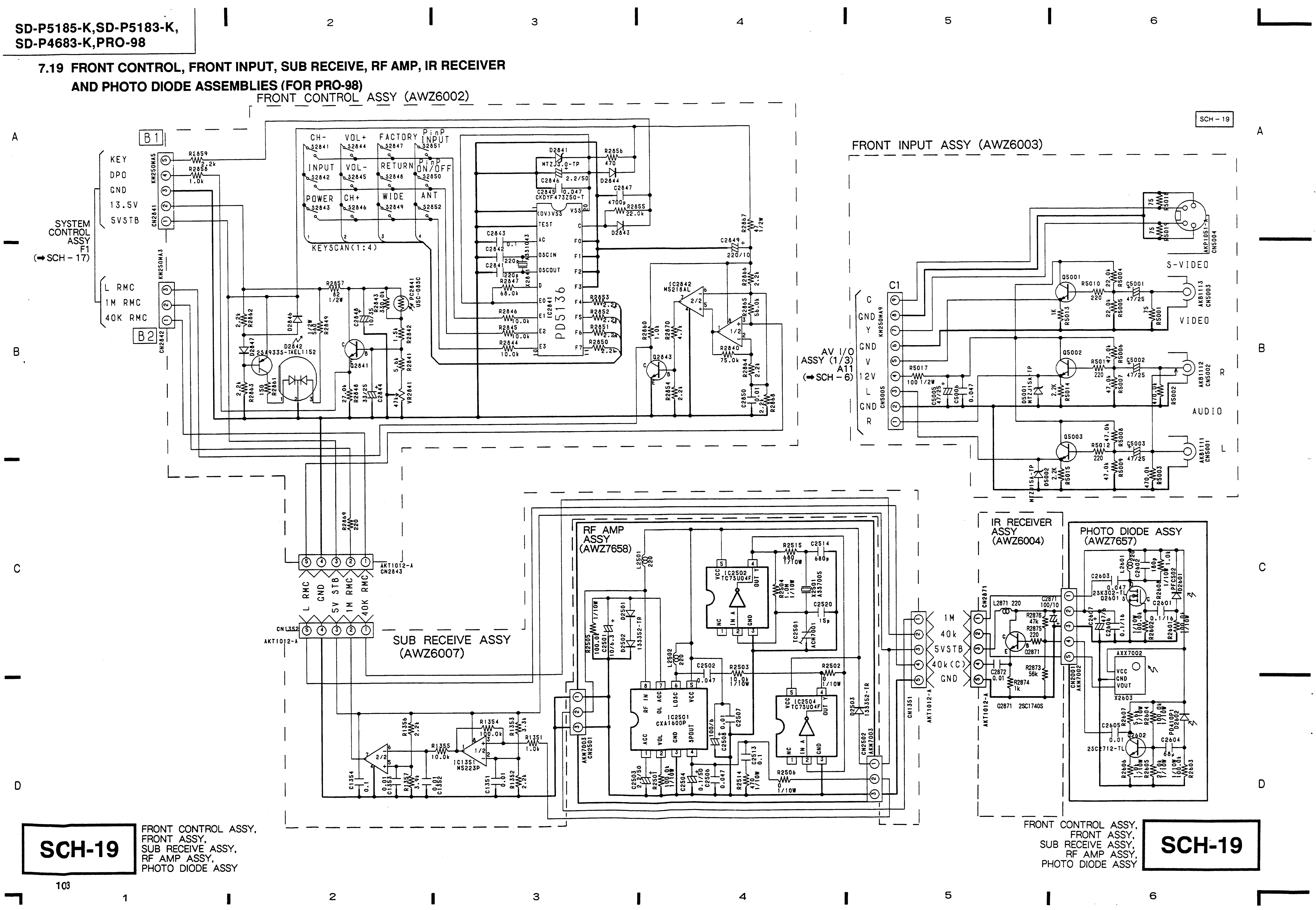


PHOTO DIODE ASSY
AWZ7857
RF AMP ASSY
AWZ7858
SYSTEM CONTROL ASSY F1
U-COM·TUNER ASSY U9 (83 FAMILY)
(ANP1821-B)
AV I/O ASSY A11
FRONT CONTROL ASSY
AWZ5989
AWZ5990
B1
B2
B3
PD5136
CN2502
CN2501
YELLOW
WHITE
RED
PINP
FACT
POWER
INPUT
ANT
CH-
CH+
VOL-
VOL+
RETURN
ON/OFF
INPUT
WIDE
VR4151
Q4152
Q4151
IC4101
IC1302
Q1306
IC1301
Q4102 Q4103
Q4101

7.19 FRONT CONTROL, FRONT INPUT, SUB RECEIVE, RF AMP, IR RECEIVER AND PHOTO DIODE ASSEMBLIES (FOR PRO-98)


1
2
3
4
5
6
A
B
C
D
FRONT CONTROL ASSY (AWZ6002)
B1
B2
KEY
DPO
GND
13.5V
5VSTB
SYSTEM CONTROL ASSY F1 (➡SCH-17)
CN2841
KM250NA5
KM250NA3
CN2842
L RMC
1M RMC
40K RMC
CH-
VOL+
FACTORY
PinP INPUT
INPUT
VOL-
RETURN
PinP ON/OFF
POWER
CH+
WIDE
ANT
S2841
S2844
S2847
S2851
S2842
S2845
S2848
S2850
S2843
S2846
S2849
S2852
KEYSCAN(1:4)
IC2841
PD5136
CKDYF473Z50-T
D2841
MTZJ3.0-TP
D2843
D2844
D2846
D2847
D2842
2SA933S-TAEL1152
Q2841
Q2843
IC2842
M5218AL
PC2841
USC-085C
X2841
VR2841
R2859
R2858
R2856
R2855
R2857
R2867
C2849
220/10
CN2843
AKT1012-A
L RMC
GND
5V STB
1M RMC
40K RMC
CN1352
AKT1012-A
SUB RECEIVE ASSY (AWZ6007)
IC1351
M5223P
RF AMP ASSY (AWZ7658)
IC2501
CXA1600P
IC2502
TC7SU04F
IC2504
TC7SU04F
X2501
A33700S
D2501
D2502
1SS352-TR
D2503
1SS352-TR
L2501
L2502
CN2501
AKM7003
CN2502
AKM7003
CN1351
AKT1012-A
FRONT INPUT ASSY (AWZ6003)
SCH-19
C1
C
GND
Y
GND
V
12V
L
GND
R
AV I/O ASSY (1/3) A11 (➡SCH-6)
KM250NA9
CN5005
Q5001
Q5002
Q5003
D5001
D5002
MTZJ15A-TP
S-VIDEO
VIDEO
AUDIO
R
L
AKP1051-A
CN5004
AKB1113
CN5003
AKB1112
CN5002
AKB1111
CN5001
IR RECEIVER ASSY (AWZ6004)
CN2871
AKT1012-A
1M
40k
5VSTB
40k(C)
GND
Q2871 2SC1740S
L2871 220
PHOTO DIODE ASSY (AWZ7657)
CN2001
AKM7002
Q2601
2SK302-TL
Q2602
2SC2712-TL
D2601
PF0502
D2602
PD410PI
AXX7002
VCC
GND
VOUT
X2603

SCH-19

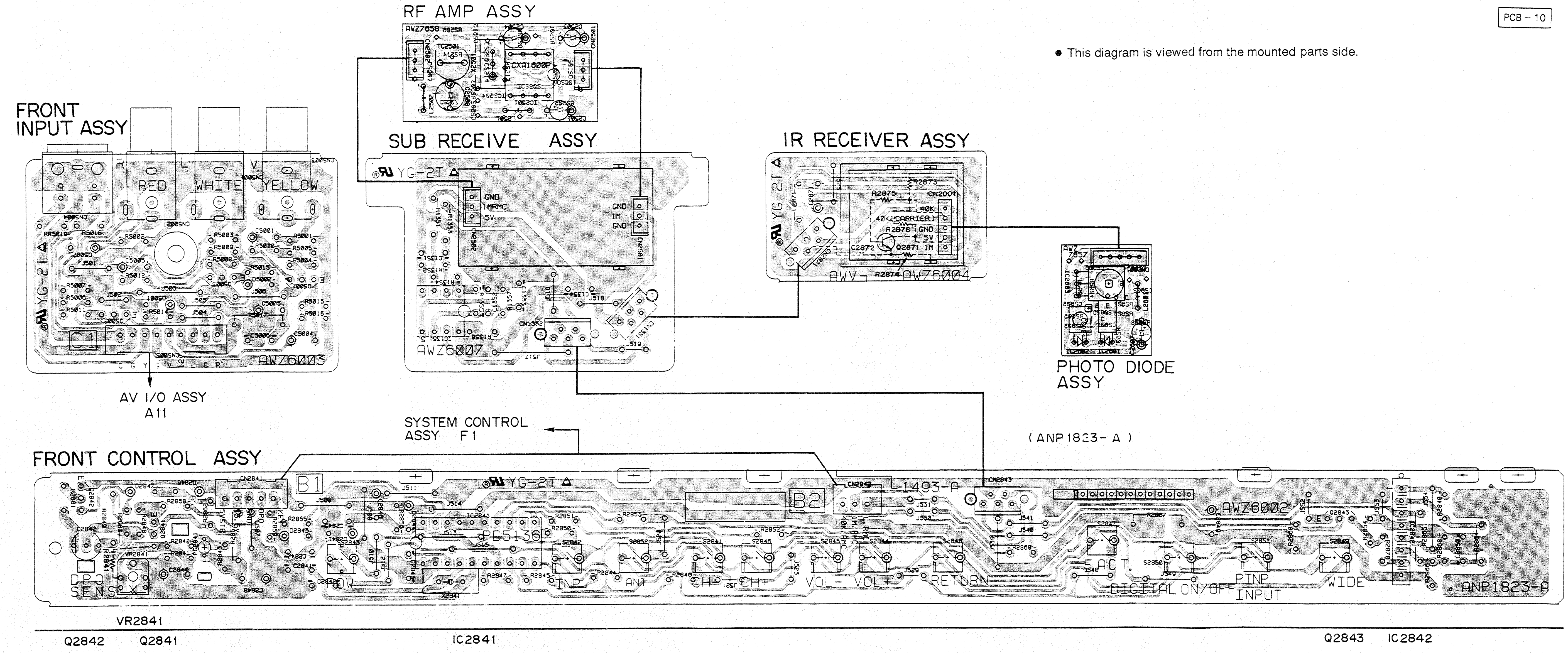
FRONT CONTROL ASSY,
FRONT ASSY,
SUB RECEIVE ASSY,
RF AMP ASSY,
PHOTO DIODE ASSY

FRONT CONTROL ASSY,
FRONT ASSY,
SUB RECEIVE ASSY,
RF AMP ASSY,
PHOTO DIODE ASSY

SCH-19

PCB – 10

- This diagram is viewed from the mounted parts side.


RF AMP ASSY
AWZ7058
CXA1600P
FRONT INPUT ASSY
RED
WHITE
YELLOW
YG-2T
AWZ6003
C1
AV I/O ASSY
A11
SUB RECEIVE ASSY
GND
MRMC
5V
GND
1M
GND
AWZ6007
IR RECEIVER ASSY
R2873
R2875
CN2001
40K
40K(CARRIER)
R2876
GND
5V
C2872
Q2871
1M
R2874
AWZ6004
PHOTO DIODE ASSY
SYSTEM CONTROL
ASSY F1
(ANP1823-A)
FRONT CONTROL ASSY
CN2841
B1
B2
CN2842
L1493-A
CN2843
AWZ6002
PD5136
DPO SENS
INP
ANT
CH-
CH+
VOL-
VOL+
RETURN
ACT.
DIGITAL ON/OFF
PINP INPUT
WIDE
ANP1823-A
VR2841
Q2842
Q2841
IC2841
Q2843
IC2842

8. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The " ⚠ " mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohms and 47k ohms (Tolerance is shown by J = 5%, and K =10%).

560Ω → 56 $\times 10^{1}$ → 561 -------------------- RD1/8PM $\boxed{5}\boxed{6}\boxed{1}$ J
47kΩ → 47 $\times 10^{3}$ → 473 -------------------- RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J
0.5Ω → 0R5 -------------------- RN2H $\boxed{0}\boxed{R}\boxed{5}$ K
1Ω → 010 -------------------- RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 $\times 10^{1}$ → 5621 -------------------- RN1/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

- *Parts marked by ☆ are important parts which relate in X-rays radiation.*
  If any of these parts need to be replaced, always replace with specified parts.
- *Parts marked by* **x** *are important parts which relate in X-rays radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself. If any part marked by* **x** *is replaced, there is danger of being exposed to X-rays.*

LIST OF ASSEMBLIS

Mark	No.	Description	Parts No.
		U-COM·TUNER ASSY (83 family)	AWV1483
		U-COM·TUNER ASSY (SD-P5185-K)	AWV1484
		U-COM·TUNER ASSY (PRO-98)	AWV1485
NSP		CONVERGENCE ASSY	AWV1486
		├ CONVERGENCE ASSY	AWZ5981
		├ R.CRT DRIVE ASSY	AWZ5982
		├ G.CRT DRIVE ASSY	AWZ5983
		├ POWER SW ASSY	AWZ5984
		└ B.CRT DRIVE ASSY	AWZ6009
NSP		AV I/O ASSY (SD-P5185-K)	AWV1488
		├ AV I/O ASSY	AWZ5985
		├ Y/C SELECTOR ASSY	AWZ5987
		├ FRONT CONTROL ASSY	AWZ5990
		├ P IN P SELECTOR ASSY	AWZ5993
		├ SYSTEM CONTROL ASSY	AWZ5998
		└ IR RECEIVE ASSY	AWX7012
		├ PHOTO DIODE ASSY	AWZ7657
		└ RF AMP ASSY	AWZ7658
NSP		AV I/O ASSY (83 family)	AWV1487
NSP		AV I/O ASSY (PRO-98)	AWV1489
		├ AV I/O ASSY (83 family)	AWZ5985
		├ AV I/O ASSY (PRO-98)	AWZ5986
		├ Y/C SELECTOR ASSY (83 family)	AWZ5987
		├ Y/C SELECTOR ASSY (PRO-98)	AWZ5988
		├ FRONT CONTROL ASSY (83 famil only)	AWZ5989
		├ P IN P SELECTOR ASSY	AWZ5993
		└ SYSTEM CONTROL ASSY (PRO-98 only)	AWZ5998
NSP		PRO FRONT ASSY (PRO-98 only)	AWV1493
		├ IR RECEIVER ASSY	AWX7012
		├ PHOTO DIODE ASSY	AWZ7657
		└ RF AMP ASSY	AWZ7658
		├ FRONT CONTROL ASSY	AWZ6002
		├ FRONT INPUT ASSY	AWZ6003
		├ IR RECEIVER ASSY	AWZ6004
		├ PRO S.G ASSY	AWZ6005
		├ CENTER SP SW	AWZ6006
		├ SUB RECEIVE ASSY	AWZ6007
		└ EXT. SP ASSY	AWZ6008
NSP		P IN P ASSY (SD-P5185-K and 83 family)	AWV1490
NSP		P IN P ASSY (PRO-98)	AWV1492
		├ CONVERGENCE PD ASSY	AWZ5991
		├ P IN P ASSY	AWZ5992
		├ A CONNECTOR ASSY	AWZ5994
		├ B CONNECTOR ASSY	AWZ5995
		├ C CONNECTOR ASSY	AWZ5996
		├ VM ASSY (PRO-98 only)	AWZ5997
		├ RELAY DRIVE ASSY	AWZ5999
		└ SUB CONVERGENCE ASSY	AWZ6001
☆		POWER SUPPLY ASSY (SD-P5185-K and 83 family)	AWV1499
☆		POWER SUPPLY ASSY (PRO-98)	AWV1500

U-COM·TUNER ASSY (AWV1483, AWV1484 and AWV1485)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC901		AT24C08-10PC
	IC4901		CXA1734S
	IC1401		LA4280-P
	IC904		M66320P
	IC605		MC14011BCP
	IC902		MC34064P
	IC604		NJM7809FAS
	IC602		PA0030
	IC903		PD5301A
	IC603		TA8647S
	IC601		TA8801AN
	IC1003		TC74HC4066AP
	IC1402		UPC1853CT-01
	Q1407 ,Q1409 ,Q1417 ,Q4802 ,Q4807		2SA933S
	Q4811 ,Q4813 ,Q4902 ,Q609 ,Q610		2SA933S
	Q612 ,Q614 ,Q625 ,Q627 ,Q629		2SA933S
	Q631 ,Q632 ,Q650 ,Q655 -Q658		2SA933S
	Q663 ,Q668 -Q672 ,Q676 -Q679		2SA933S
	Q901 ,Q915 ,Q927 -Q930		2SA933S
	Q910	(AWV1483 only)	2SA933S
	Q924 ,Q926	(AWV1484 and AWV1485 only)	2SA933S
	Q932	(AWV1484 and AWV1485 only)	2SA933S
	Q903 ,Q905 ,Q912	(AWV1483 only)	2SC1740S
	Q1402 ,Q1404 ,Q1406 ,Q1408		2SC1740S
	Q1410 -Q1413 ,Q1415 ,Q4804 ,Q4806		2SC1740S
	Q1414 ,Q1416	(AWV1484 and AWV1485 only)	2SC1740S
	Q4808 -Q4810 ,Q4814 ,Q4903 ,Q4904		2SC1740S
	Q601 -Q608 ,Q611 ,Q613 ,Q615		2SC1740S
	Q618 -Q624 ,Q626 ,Q628 ,Q630		2SC1740S
	Q633 ,Q636 ,Q637 ,Q645 ,Q647		2SC1740S
	Q649 ,Q651 ,Q659 -Q662		2SC1740S
	Q664 -Q667 ,Q673 -Q675		2SC1740S
	Q680 -Q685 ,Q902 ,Q904		2SC1740S
	Q906 -Q909 ,Q916 -Q921 ,Q923		2SC1740S
	Q925	(AWV1484 and AWV1485 only)	2SC1740S
	Q933 ,Q934		2SC1740S
	Q4812		2SC2878
	Q1401		2SD1276A
	Q4803		2SD438
	Q911		2SD880
	Q652 -Q654		2SK246
	Q4801 ,Q4901 ,Q634 ,Q635 ,Q639		XDC124ES
	D1405	(LED : RED)	AEL1099
	D1409 ,D1410 ,D1413 ,D1415 ,D1416		HSS104-02
	D1418 -D1420 ,D1423 ,D1425		HSS104-02
	D1427 -D1429 ,D1434 -D1437		HSS104-02
	D1450 -D1457 ,D4801 -D4808 ,D4816		HSS104-02
	D601 -D610 ,D615 ,D620 ,D622		HSS104-02
	D625 ,D626 ,D628 ,D629 ,D631		HSS104-02
	D635 ,D636 ,D638 ,D639 ,D641		HSS104-02
	D643 ,D651 -D654 ,D659 -D661		HSS104-02
	D669 ,D670 ,D674 -D676 ,D680		HSS104-02
	D684 -D687 ,D901 -D903 ,D905		HSS104-02
	D906 ,D908 ,D909	(AWV1483 only)	HSS104-02
	D911 -D913 ,D918 -D925		HSS104-02
	D914 ,D915	(AWV1485 only)	HSS104-02
	D949 ,D950 ,D971 ,D977 -D979		HSS104-02
	D981 -D984		HSS104-02
	D611 ,D688		HZS11A1L
	D4905 ,D4906 ,D616 -D619 ,D621		MTZJ15
	D623 ,D624 ,D627 ,D630		MTZJ15
	D632 -D634 ,D637 ,D640 ,D642		MTZJ15
	D644 -D650 ,D655 ,D658 ,D662		MTZJ15
	D941 -D945		MTZJ15
	D1411 ,D1412 ,D4815 ,D4817 ,D910		MTZJ6.8
	D907	(AWV1483 only)	MTZJ6.8
	D916 ,D927 -D930		MTZJ6.8
	D933 -D935 ,D938 ,D939	(AWV1484 and AWV1485 only)	MTZJ6.8
	D936 ,D937 ,D947		MTZJ6.8
	D946 ,D973	(AWV1485 only)	MTZJ6.8
	D951 -D966 ,D968 ,D969		MTZJ6.8
	D972	(AWV1484 and AWV1485 only)	MTZJ6.8
	D974 -D976 ,D985 ,D990		MTZJ6.8
	D4818		RD12ESB3
	D4810		RD33ESB3
	D904 ,D931 ,D932		RD5.1ESB2
	D1401 ,D1426 ,D4809		RD5.6ESB3
	D1403	(AWV1484 and AWV1485 only)	S5688G
	D671 -D673 ,D677 -D679		S5688G
	D681 -D683		S5688G
COILS			
	L1401 ,L1402	(1 μH)	ATH-133
	DL601	(DELAY LINE)	ATN1014
	L602		LAU121K
	L901		LAU180K
	L4801 ,L4802 ,L4901		LAU2R2K
	L604 -L606		LAU4R7K
	L4804		LAU560K
	L601		LAU680K
SWITCH AND RELAY			
	RY1401	(AWV1484 and AWV1485 only)	ASR1040
	S1401	(AWV1483 only)	ASH1001
CAPACITORS			
	TC901		ACM-020
	C4915	(3.3/50)	ACH1128
	C4918	(10/50)	ACH1129
	C662		CCCCH100D50
	C923		CCCCH120J50
	C608 ,C617		CCCCH151J50
	C603		CCCCH820J50
	C4801 ,C4809 -C4811 ,C4815		CCCSL101J50
	C929 ,C930		CCCSL101J50
	C615 ,C679 -C681		CCCSL121J50
	C1421 ,C1428 ,C682 -C684		CCCSL151J50
	C614		CCCSL180J50
	C910 ,C912		CCCSL221J50
	C612 ,C613		CCCSL390J50
	C4817		CCCSL470J50
	C623		CCCSL820J50
	C668 ,C669 ,C675 -C677		CEANP010M50
	C625		CEANP4R7M50
	C1472 ,C4904 ,C4917 ,C602 ,C604		CEAS010M50
	C606 ,C611 ,C621 ,C622 ,C629		CEAS010M50
	C916 ,C919 ,C935 -C938		CEAS010M50
	C934	(AWV1484 and AWV1485 only)	CEAS010M50
	C909		CEAS0R1M50
	C1403 ,C4806 ,C4820 ,C4822 ,C4901		CEAS100M50
	C620 ,C652 ,C656 ,C658 ,C661		CEAS100M50
	C666 ,C670 ,C903		CEAS100M50
	C4808 ,C618 ,C917 ,C925		CEAS101M10
	C4909 ,C631 ,C632 ,C637 ,C644		CEAS101M25
	C654 ,C667 ,C674		CEAS101M25
	C4812 ,C628		CEAS102M16
	C911		CEAS102M25

Mark	No.	Description	Parts No.
	C1471		CEAS220M50
	C1425		CEAS221M10
	C671 ,C685		CEAS221M16
	C1429 ,C1437		CEAS222M35
	C1418 ,C1419 ,C1450 -C1452		CEAS2R2M50
	C1457 -C1459 ,C636 ,C640 ,C664		CEAS2R2M50
	C601 ,C609 ,C626		CEAS330M25
	C1422 ,C1427		CEAS330M35
	C933	(AWV1484 and AWV1485 only)	CEAS330M35
	C4826		CEAS331M16
	C939	(AWV1484 and AWV1485 only)	CEAS331M50
	C1469 ,C1470		CEAS3R3M50
	C908	(AWV1483 and AWV1484 only)	CEAS3R3M50
	C908	(AWV1485 only)	CEAS4R7M50
	C1414 ,C4805 ,C4824 ,C4827 ,C4828		CEAS470M25
	C616 ,C627 ,C673 ,C686 ,C906		CEAS470M25
	C927 ,C932		CEAS470M25
	C1423		CEAS470M50
	C630		CEAS471M10
	C1401 ,C1436		CEAS471M50
	C4902 ,C4906 -C4908 ,C4911 ,C4912		CEAS4R7M50
	C4916 ,C4921 ,C4922 ,C605 ,C625		CEAS4R7M50
	C643 ,C648		CEAS4R7M50
	C941	(AWV1484 and AWV1485 only)	CEASR22M50
	C4905 ,C610		CEASR47M50
	C1424 ,C1426		CEHAQ100M50
	C641 ,C645		CFTXA104J50
	C1430 ,C1438		CFTXA124J50
	C4903		CFTXA224J50
	C1460 ,C1461 ,C4818 ,C921		CKCYB102K50
	C940	(AWV1484 and AWV1485 only)	CKCYB102K50
	C902		CKCYB103K50
	C907 ,C913 ,C918 ,C920 ,C926 ,C931	(AWV1483 only)	CKCYB103K50
	C907 ,C913 ,C918 ,C920 ,C926 ,C931	(AWV1484 and AWV1485 only)	CKCYF103Z50
	C915	(AWV1485 only)	CKCYB103K50
	C928		CKCYB122K50
	C1416 ,C1417		CKCYB152K50
	C4919 ,C4920		CKCYB222K50
	C678		CKCYB391K50
	C4829		CKCYB471K50
	C1402		CKCYB561K50
	C904	(AWV1483 only)	CKCYB472K50
	C1404 ,C1439 ,C4802 ,C4804 ,C4813		CKCYF103Z50
	C4823 ,C4825 ,C4910 ,C642 ,C647		CKCYF103Z50
	C655 ,C659 ,C914		CKCYF103Z50
	C905	(AWV1483 only)	CKCYF103Z50
	C918 ,C920 ,C926 ,C931		CKCYF103Z50
	C1413 ,C1432 ,C1433 ,C1435 ,C619		CKCYF473Z50
	C624 ,C633 ,C639 ,C646 ,C672		CKCYF473Z50
	C687 ,C924		CKCYF473Z50
	C901	(AWV1483 only)	CKCYF473Z50
	C634		CKCYX104M25
	C1464		CQMA102J50
	C638		CQMA103J50
	C1466 ,C1468 ,C1475		CQMA104J50
	C650		CQMA124J50
	C665		CQMA183J50
	C1476		CQMA222J50
	C1462 ,C1463 ,C653 ,C657		CQMA223J50
	C4913		CQMA272J50
	C663		CQMA472J50
	C4914 ,C660 ,C901		CQMA473J50
	C1473 ,C607		CQMA681J50
	C1465 ,C1467		CQMA682J50
	C1474		CQMA823J50
RESISTORS			
	R1052		RA5T153J
	R503 -R505 ,R881 ,R882		RD1/2PM100J
	R952		RD1/2PM122J
	R1434 ,R1437		RD1/2PM152J
	R880		RD1/2PM270J
	R1405 ,R4810 ,R896 -R898		RD1/2PM271J
	R4811 ,R4846		RD1/2PM681J
	R1435 ,R1440		RD1/4PMFL100J
	R509		RD1/4PMFL101J
	R1406 ,R4840		RD1/4PMFL220J
	R1436 ,R1438		RD1/4PMFL2R2J
	R1100 ,R508 ,R686 ,R945		RD1/4PMFL3R9J
	R694		RN1/4PC1001F
	R672 ,R681 ,R695		RN1/4PC1002F
	R673 ,R674		RN1/4PC1202F
	R693		RN1/4PC2002F
	R682		RN1/4PC2402F
	R631		RN1/4PC2701F
	R1402		RN1/4PC3002F
	R4908		RN1/4PC4302F
	R670		RN1/4PC4701F
	R632		RN1/4PC5601F
	R1401		RN1/4PC6201F
	R4903		RN1/4PC6202F
	R721		RS2LMF3R3J
	R687		RS2LMF4R7J
	R4809		RS2MMF220J
	VR601	(100Ω)	ACP1037
	VR602	(220Ω)	ACP1038
	VR4801,VR603	(4.7k)	ACP1042
		Other Resistors	RD1/8PM□□□J
OTHERS			
		TV FRONT-END SYSTEM UNIT	AXF1077
		RF SWITCH	AXF1078
		SPEAKER TERMINAL 4-P (AWV1484 only)	AKE1057
		PLATE SPRING	ANG1569
		HEAT SINK	ANH-575
		HEAT SINK	ANH1150
		HEAT SINK	ANH1506
		SHIELD PLATE	ANK1500
	X901	CERAMIC RESONATOR (8.00MHz)	ASS1015
	X601	CERAMIC RESONATOR (503kHz)	ASS1019
	X602	CRYSTAL RESONATOR (3.579545MHz)	ASS1091
		SCREW	BBZ30P080FCU
	CN903	11P PLUG	KM200IA11
	CN1402	11P PLUG (AWV1485 only)	KM200IA11
	CN901	16P PLUG (AWV1484 and AWV1485 only)	KM200IA16
	CN604	6P PLUG (AWV1485 only)	KM200IA6
	CN603	8P PLUG	KM200IA8
	CN601	PLUG 11-P	KM250MA11
	CN906	PLUG 13-P	KM250MA13B
	CN606	PLUG 4-P	KM250MA4
	CN1401	PLUG 8-P	KM250MA8
	CN902	PLUG 8-P (AWV1483 only)	KM250MA8B
		PIN JACK(1P) (AWV1485 only)	AKB1111
	CN1403	PIN JACK(2P) (AWV1484 only)	AKB1146
	CN1403	PIN JACK(2P) (AWV1485 only)	AKB1151
	CN910	JACK (AWV1483 only)	AKN-209
	CN905	PLUG 8-P	KM250MA8R

Mark	No.	Description	Parts No.
	CN605	PLUG 9-P	KM250MA9R
	CN4801,CN602	10P SOCKET	KP250NA10
	CN904	SOCKET 7-P	KP250NA7
		SCREW	PBZ30P080FMC

CONVERGENCE ASSY (AWZ5981)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC2316		M5228P
	IC2312,IC2313,IC2315,IC2319-IC2321		NJM4558LD
	IC2603		NJM4558LD
	IC2302		NJM78M05FAS
	IC2301		NJM79M05FA
	IC2303,IC2304		PA0053B
	IC2305,IC2306		PM0002B
⚠	IC2601		STK4274
	IC2307		STK4277-SL
	IC2311		TC4053BP
	IC2310,IC2602		TC4066BP
	Q2301		2SA933S
	Q2302 -Q2306 ,Q2602		2SC1740S
	D2301 ,D2302 ,D2309 ,D2313		HSS104-02
	D2315 -D2317		HSS104-02
	D2310 -D2312 ,D2319 ,D2325 -D2330		MTZJ12
	D2333 ,D2334 ,D2336 ,D2340		MTZJ12
	D2342 ,D2343 ,D2346 ,D2348 ,D2350		MTZJ12
	D2352 ,D2355 ,D2357 -D2359 ,D2362		MTZJ12
	D2366 ,D2370 -D2380 ,D2382 -D2388		MTZJ12
	D2394 -D2397 ,D2399 -D2406		MTZJ12
	D2601 -D2605 ,D2611 -D2616		MTZJ12
	D2305 -D2308 ,D2354		MTZJ6.8
	D2398		RD20ESB
	D2314		RD4.7ESB2
	D2389 -D2393 ,D2407 -D2411		S5688G
	D2607 -D2610		S5688G
CAPACITORS			
	C2346 ,C2347 ,C2382 ,C2383		CCCCH101J50
	C2609		CCCSL271J50
	C2348		CCMSL470J50
	C2308 ,C2339 -C2341 ,C2345 ,C2375		CEAS010M50
	C2386		CEAS010M50
	C2381 ,C2432 ,C2611		CEAS100M50
	C2303 -C2305 ,C2313 ,C2322 ,C2323		CEAS101M10
	C2344 ,C2349 ,C2355 ,C2356		CEAS101M10
	C2393 ,C2394 ,C2396 ,C2397 ,C2424		CEAS101M10
	C2426 ,C2615 ,C2621 ,C2622		CEAS101M10
	C2307 ,C2312 ,C2366 ,C2372		CEAS221M10
	C2376 ,C2377		CEAS330M35
	C2320 ,C2321 ,C2330 ,C2357 ,C2358		CEAS331M6
	C2367 ,C2371		CEAS331M6
	C2378		CEAS470M25
	C2379		CEAS4R7M50
	C2342		CEASR47M50
	C2301 ,C2302		CEHAQ330M35
	C2405 -C2408 ,C2601 -C2604		CEHAQ471M35
	C2359 ,C2374		CFTYA224J50
	C2610		CKCYB681K50
	C2306 ,C2309 ,C2314 -C2319		CKCYF473Z50
	C2324 ,C2325 ,C2327 -C2329		CKCYF473Z50
	C2331 -C2333 ,C2336 ,C2337		CKCYF473Z50
	C2350 -C2353 ,C2361 ,C2362		CKCYF473Z50
	C2364 ,C2365 ,C2368 -C2370 ,C2385		CKCYF473Z50
	C2387 -C2392 ,C2409 -C2412 ,C2425		CKCYF473Z50
	C2427 ,C2428 ,C2605 -C2608		CKCYF473Z50
	C2617 -C2620		CKCYF473Z50
	C2326		CQMA102J50
	C2310		CQMA103J50
	C2380		CQMA104J50
	C2311		CQMA182J50
	C2338 ,C2343		CQMA471J50
RESISTORS			
	R2563		RD1/2PM271J
	R2621 -R2623		RD1/2PM470J
	R2518 ,R2520 ,R2603 ,R2604		RD1/2PMFL220J
	R2610		RN1/4PC1001F
⚠	R2301 ,R2302		RS1LMF8R2J
⚠	R2511 ,R2519		RS2LMFR47J
⚠	R2613		RS3LMF010J
⚠	R2532 ,R2541		RS3LMF3R3J
⚠	R2334 ,R2384 ,R2482 ,R2486 ,R2531		RS3LMF6R8J
⚠	R2536 ,R2539 ,R2540 ,R2543 ,R2547		RS3LMF6R8J
⚠	R2601 ,R2602 ,R2612		RS3LMF6R8J
	VR2301-VR2303,VR2310-VR2312 (4.7k)		ACP1042
	VR2304,VR2313 (10k)		ACP1043
	VR2305,VR2307,VR2308 (47k)		ACP1045
	VR2315,VR2602 (47k)		ACP1045
	VR2306,VR2314 (220k)		ACP1047
	VR2601		VRTS6VS471
		Other Resistors	RD1/8PM□□□J
OTHERS			
		BINDER	AEP-215
		HEAT SINK M	ANH-697
		HEAT SINK	ANH1438
		HEAT SINK	ANH1482
		SHIELD PLATE	ANK1500
	CN2601	5P PLUG	KM200IA5
	CN2308	6P PLUG	KM200IA6
	CN2303	PLUG 12-P	KM250MA13
	CN2301,CN2306	PLUG 6-P	KM250MA6
	CN2307	PLUG 6-P	KM250MA6B
	CN2305	PLUG 6-P	KM250MA6R
	CN2302	PLUG 8-P	KM250MA8R
		SCREW	ABA1056
		SCREW	BBZ30P080FCU
		SCREW	BBZ30P080FZK
		SCREW	PBZ30P080FMC

R.CRT DRIVE ASSY (AWZ5982)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q2701		2SC4001
	D2701		HSS104-02
COILS			
	L2703		LAU101K
	L2701 ,L2702		LAU470K
CAPACITORS			
	C2704 (1000p / 2k)		ACG1001
	C2701		CEAS101M10
	C2702		CKCYB681K50
RESISTORS			
	R2705 (47,1/2W)		ACN-225
	R2702 (1k,1/2W)		ACN1006
	R2703 ,R2704		RS3LMF332J
		Other Resistors	RD1/8PM□□□J

Mark	No. Description	Parts No.
OTHERS		
⚠	CRT SOCKET	AKG1004
	HEAT SINK M3	ANH1409
	CN2702 PLUG 3-P	KM250MA3R
	SCREW	PMB30P100FMC

G.CRT DRIVE ASSY (AWZ5983)

Mark	No. Description	Parts No.
SEMICONDUCTORS		
	Q2731	2SC4001
	D2731	HSS104-02
COILS		
	L2733	LAU101K
	L2731 ,L2732	LAU470K
CAPACITORS		
	C2734 (1000p / 2k)	ACG1001
	C2733 (4.7 / 250)	ACH-378
	C2731	CEAS101M10
	C2732	CKCYB681K50
RESISTORS		
	R2735 (47,1/2W)	ACN-225
	R2732 (1k,1/2W)	ACN1006
	R2733 ,R2734	RS3LMF332J
	Other Resistors	RD1/8PM□□□J
OTHERS		
	J2 ,J3 LEAD WITH HOUSING	ADX1508
⚠	CRT SOCKET	AKG1004
	HEAT SINK M3	ANH1409
	CN2732 PLUG 3-P	KM250MA3
	SCREW	PMB30P100FMC

POWER SW ASSY (AWZ5984)

Mark	No. Description	Parts No.
SWITCH		
	S3591	ASG1006
OTHERS		
	CN3591 PLUG 2-P	AKM-089

B.CRT DRIVE ASSY (AWZ6009)

Mark	No. Description	Parts No.
SEMICONDUCTORS		
	Q2761	2SC4001
	D2761	HSS104-02
COILS		
	L2763	LAU101K
	L2761 ,L2762	LAU470K
CAPACITORS		
	C2764 (1000p / 2k)	ACG1001
	C2761	CEAS101M10
	C2762	CKCYB681K50
RESISTORS		
	R2765 (47,1/2W)	ACN-225
	R2762 (1k,1/2W)	ACN1006
	R2763 ,R2764	RS3LMF332J
	Other Resistors	RD1/8PM□□□J
OTHERS		
⚠	CRT SOCKET	AKG1004
	HEAT SINK M3	ANH1409
	CN2762 PLUG 3-P	KM250MA3B
	CN2763 PLUG 5-P	KM250MA5
	SCREW	PMB30P100FMC

AV I/O ASS'Y (AWZ5985 and AWZ5986)

Mark	No. Description	Parts No.
SEMICONDUCTORS		
	IC2251	M66320P
	IC1604	NJM7805FAS
	IC1605	NJM79M05FA
	IC1731	PD5300A
	IC1804	TC4013BP
	IC1802	TC4040BP
	IC1601-IC1603	TC4051BP
	IC1803	TC74HC04AP
	IC1801	TC74HC4538AP
	Q1604 ,Q1607 ,Q1608 ,Q1616 ,Q1621	2SA933S
	Q1806 ,Q1853 ,Q1857 -Q1859	2SA933S
	Q1862 ,Q1863 ,Q1865 -Q1869 ,Q1875	2SA933S
	Q1601 -Q1603 ,Q1605 ,Q1606	2SC1740S
	Q1609 -Q1615 ,Q1617 -Q1620	2SC1740S
	Q1622 -Q1627 ,Q1731 ,Q1801 ,Q1802	2SC1740S
	Q1807 ,Q1860 ,Q1861 ,Q1864	2SC1740S
	Q1870 -Q1873 ,Q1878 ,Q1881-Q1888	2SC1740S
	Q2251 ,Q2252	2SC1740S
	Q1856	2SK246
	Q1805	RN1201
	Q1735	XDC143ES
	D1601 -D1603 ,D1605 ,D1732	HSS104-02
	D1734 -D1740 ,D1744 ,D1745	HSS104-02
	D1748 -D1756 ,D1803 -D1823	HSS104-02
	D1830 -D1837 ,D1847 ,D1851 ,D1852	HSS104-02
	D1854 -D1856 ,D1859 -D1862	HSS104-02
	D1731 ,D1733 ,D1741 -D1743	MTZJ6.8
	D1746 ,D1747 ,D1801 ,D1802	MTZJ6.8
	D1824 -D1827 ,D2251 -D2259	MTZJ6.8
	D2263 ,D2264	MTZJ6.8
	D1604	RD3.6ESB1
COILS		
	L1601 (1000 μH)	ATH1046
	L2251	LAU220J
	L1731	LAU2R2K
	DL1851 DELAY LINE	ATN1014
CAPACITORS		
	C1805	CCCCH151J50
	C2254 ,C2255	CCCSL101J50
	C1849	CCCSL270J50
	C1855	CEANP010M50
	C1734 ,C1739	CEAS0R1M50
	C1626 ,C1635 ,C1646 ,C1652	CEAS100M50
	C1602 ,C1606 ,C1610 ,C1614 -C1616	CEAS101M10
	C1618 ,C1623 ,C1641 ,C1643 ,C1644	CEAS101M10
	C1649 ,C1736	CEAS101M10
	C1603 ,C1609 ,C1642 ,C1854 ,C1862	CEAS101M25
	C1601 ,C1608	CEAS102M10
	C1648	CEAS220M50
	C1853	CEAS221M10
	C1612	CEAS221M16
	C1620 ,C1625 ,C1627 ,C1637 -C1640	CEAS2R2M50
	C1650 ,C1651	CEAS2R2M50
	C1604 ,C1858 ,C1876	CEAS330M35
	C1851	CEAS331M16
	C1802 ,C1804 ,C1807 ,C1810 ,C1852	CEAS470M25
	C2251	CEAS470M25
	C1628 ,C1629 ,C1633	CEAS471M10
	C1634	CEHAQ101M10
	C1619	CEHAQ2R2M50
	C1740 ,C1741	CKCYB102K50

Mark	No.	Description	Parts No.
	C1645 ,C1647		CKCYB331K50
	C2253		CKCYB471K50
	C1738		CKCYB561K50
	C1605 ,C1607 ,C1611 ,C1613 ,C1617		CKCYF103Z50
	C1621 ,C1622 ,C1624 ,C2252		CKCYF103Z50
	C1630 -C1632 ,C1636 ,C1737		CKCYF473Z50
	C1801 ,C1803 ,C1806 ,C1809 ,C1814		CKDYF473Z50
	C1733		CQMA102J50
	C1808		CQMA471J50
	C1813		CQPA362J100
RESISTORS			
	R1763		RA8T103J
	R1761 ,R1762		RA9T103J
	R1816		RD1/2PM102J
	R1634 ,R1724		RD1/2PM221J
	R1711		RD1/2PMFL2R2J
	R1651 ,R1690 ,R1718		RD1/2PMFL3R9J
	R1652 ,R1689 ,R1719		RD1/2PMFL6R8J
	R1691		RD1/4PM221J
	R1602 ,R1606		RD1/4PM750J
	R1851		RD1/4PMFL3R9J
	R1806		RN1/4PC1202F
	R1803		RN1/4PC5102F
	R1668		RS1LMF3R9J
	R1697		RS3LMF3R3J
	R1704		RS3LMF6R8J
	VR1812		VRTB6VS104
	VR1801		VRTS6VS103
		Other Resistors	RD1/8PM□□□J
OTHERS			
		PIN JACK(12P) (AWZ5986 only)	AKB1114
		PIN JACK(3P) (AWZ5986 only)	AKB1137
		CABLE HOLDER	AKT1011
		HEAT SINK	ANH-880
	X1732	CERAMIC RESONATOR (8.00MHz)	ASS1015
	X1731	CERAMIC RESONATOR (12MHz)	ASS1062
	J1001	11P-HOUSING WIRE	ADX2197
	J1002	8P-HOUSING WIRE	ADX2198
	J1	JUMPER WIRE	D15A13-150-2651
	J2	JUMPER WIRE	DHH03-150-2651
	CN1608	PIN JACK(12P) (AWZ5985 only)	AKB1094
	CN1609	PIN JACK(3P) (AWZ5985 only)	AKB1102
	CN1601,CN1602	PLUG 10-P	KM200IA10
	CN1607	PLUG 13-P	KM200IA13
	CN1606	PLUG 5-P	KM200IA5
	CN1612	PLUG 3-P (AWZ5986 only)	KM250MA3
	CN1603	PLUG 9-P	KM250MA9B
	CN1605,CN1851	PLUG 10-P	KM250NA10L
	CN1604	PLUG 7-P	KM250NA7L
		SCREW	PBZ30P080FMC

Y/C SELECTOR ASSY (AWZ5987 and AWZ5988)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC2151		TC4052BP
	Q2163 ,Q2164		2SA933S
	Q2151 -Q2156 ,Q2161 ,Q2162		2SC1740S
	Q2165 ,Q2166		2SC1740S
	D2151 ,D2152		HSS104-02
	D2153 -D2155		MTZJ12
CAPACITORS			
	C2151 ,C2154 ,C2158		CEAS101M10
	C2164		CEAS101M25
	C2152 ,C2153 ,C2156 ,C2161 ,C2162		CKCYF103Z50
RESISTORS			
	R2196 ,R2197		RD1/2PM821J
		Other Resistors	RD1/8PM□□□J
OTHERS			
	CN2151	SOCKET (AWZ5987)	AKP1065
	CN2151	SOCKET (AWZ598)	AKP1066
		CABLE HOLDER	AKT1011

FRONT CONTROL ASSY (AWZ5989 and AWZ5990)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC1301		M5218AL
	IC1302		M5223P
	IC4101		PD5136
	Q4152		2SA933S
	Q1306 ,Q4101 -Q4103		2SC1740S
	D4151	(LED : RED and GREEN)	AEL1152
	D4110 ,D4111 ,D4152 ,D4153		HSS104-02
	D4103 ,D4104		MTZJ15
	D4109		MTZJ3.0
COIL			
	L1301	(AWZ5990 only)	LAU221K
SWITCHES			
	S4101 -S4112		ASG1034
CAPACITORS			
	C4108 ,C4109		CCCSL221J50
	C4152	(AWZ5989 only)	CCCSL221J50
	C4113		CEAS101M10
	C1304	(AWZ5990 only)	CEAS221M10
	C4112		CEAS2R2M50
	C4101 -C4103 ,C4106 ,C4107		CEAS470M25
	C1301 -C1303 ,C1305	(AWZ5990 only)	CKCYB103K50
	C4114		CKCYB472K50
	C4105 ,C4111 ,C4115		CKCYF473Z50
	C1306	(AWZ5990 only)	CKCYX104M16
	C4110		CKCYX104M16
RESISTORS			
	R4157		RD1/2PM561J
	R4139		RD1/4PMFL101J
	R1321		RD1/4PMFL470J
		Other Resistors	RD1/8PM□□□J
OTHERS			
		SHIELD CASE A(MET) (AWZ5990 only)	ANK7009
		SHIELD CASE B(MET) (AWZ5990 only)	ANK7010
	CN4103	PIN JACK(1P)	AKB1055
	CN4101	PIN JACK(1P)	AKB1056
	CN4102	PIN JACK(1P)	AKB1057
	CN4104	SOCKET	AKP1081
	X4101	CERAMIC OSCILLATOR (480kHz)	ASS1043
	CN1301	PLUG 3-P	KM250MA3
	CN4106	PLUG 5-P	KM250MA5B
	CN4105	PLUG 9-P	KM250MA9

P IN P SELECTOR ASSY (AWZ5993)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC2201		TC4051BP
	Q2207		2SA933S
	Q2201 -Q2206		2SC1740S
	D2201		HSS104-02

Mark	No. Description	Parts No.
	CAPACITORS	
	C2201 ,C2203 ,C2205	CEAS101M10
	C2202 ,C2204 ,C2206 ,C2207	CKCYF103Z50
	RESISTORS	
	All Resistors	RD1/8PM□□□J
	OTHERS	
	CN2201,CN2202 10P SOCKET	KP200IA10L

SYSTEM CONTROL ASSY (AWZ5998)

Mark	No. Description	Parts No.
	SEMICONDUCTORS	
	IC3403	LH5268AN1TLL
	IC3402	PD5320A
	IC3404	TC74HC02AP
	IC3401	TC74HC123AP
	Q3409	2SA1515
	Q3403 ,Q3411	2SA933S
	Q3401 ,Q3402 ,Q3404 -Q3408	2SC1740S
	Q3412 ,Q3413	2SC1740S
	Q3410 ,Q3414	XDA124ES
	Q3415	XDC124ES
	D3402 -D3407 ,D3413 -D3421	HSS104-02
	D3423 -D3429	HSS104-02
	D3401 ,D3408 -D3411	MTZJ6.8
	D3412	RD3.0ESB1
	COIL	
	L3401	LAU220K
	CAPACITORS	
	C3408 (47mF/5.5)	ACH1246
	C3416	CEAS100M50
	C3407	CEAS101M10
	C3413	CEAS101M50
	C3417	CEAS2R2M50
	C3404 ,C3409 ,C3414 ,C3419	CEAS470M25
	C3401 ,C3403	CKCYB102K50
	C3402 ,C3405 ,C3406 ,C3411 ,C3412	CKCYF103Z50
	C3415 ,C3418	CKCYF103Z50
	C3410	CKCYF473Z50
	RESISTORS	
	R3419	RD1/2PMFL220J
	Other Resistors	RD1/8PM□□□J
	OTHERS	
	X3401 CERAMIC RESONATOR (4.00MHz)	ASS1025
	JACK	BKN1005
	CN3405,CN3406 JACK	AKN-207
	CN3403 JACK	AKN1028
	CN3401 PLUG 8-P	KM250MA8B
	CN3402 16P SOCKET	KP200IA16L

PHOTO DIODE ASSY (AWZ7657)

Mark	No. Description	Parts No.
	SEMICONDUCTORS	
	IC2602	PD410PI
	IC2601	PFC502
	IC2603	SBX8025-H
	Q2602	2SC2712
	Q2601	2SK302
	COIL	
	L2601	LAU221K
	CAPACITORS	
	C2602	CCSQCH181J50
	C2604	CCSQCH820J50
	C2607	CEAL470M6R3
	C2605	CKSQYB103K50
	C2603	CKSQYB473K50
	C2601 ,C2606	CKSQYF104Z25
	RESISTORS	
	All Resistors	RS1/10S□□□J
	OTHERS	
	LED HOLDER(PLS)	AMR7040

RF AMP ASSY (AWZ7658)

Mark	No. Description	Parts No.
	SEMICONDUCTORS	
NSP	IC2501	
NSP	IC2502,IC2504	
	D2501 -D2503	1SS352
	COILS	
	L2501 ,L2502	LAU221K
	CAPACITORS	
NSP	TC2501	
NSP	C2520	
NSP	C2514	
	C2501	CEAL100M6R3
	C2508	CEAL101M6R3
	C2503	CEAL2R2M35
	C2504	CEALR10M50
	C2507	CKSQYB103K50
	C2513	CKSQYB104K25
	C2502 ,C2506	CKSQYB473K50
	RESISTORS	
	All Resistors	RS1/10S□□□J
	OTHERS	
NSP	X2501 CERAMIC RESONATOR	

FRONT CONTROL ASSY (AWZ6002)

Mark	No. Description	Parts No.
	SEMICONDUCTORS	
	IC2842	M5218AL
	IC2841	PD5136
	Q2842	2SA933S
	Q2841 ,Q2843	2SC1740S
	D2842	AEL1152
	D2843 ,D2844 ,D2846 ,D2847	HSS104-02
	D2841	MTZJ3.0
	PC2841	U5C-08SC
	SWITCHES	
	S2841 -S2852	ASG1034
	CAPACITORS	
	C2841 ,C2842	CCCSL221J50
	C2849	CEAS221M10
	C2848	CEJA100M35
	C2846	CEJA2R2M50
	C2844	CEJA330M25
	C2843	CFTXA104J50
	C2850	CKCYF103Z50
	C2847	CKDYB472K50
	C2845	CKDYF473Z50
	RESISTORS	
	R2849	RD1/2PM561J
	R2857	RD1/2PMF820J
	R2867	RD1/2PMFL470J
	VR2841 (47k)	ACP1045
	Other Resistors	RD1/8PM□□□J

Mark	No.	Description	Parts No.
OTHERS			
	X2841	CERAMIC OSCILLATOR (480kHz)	ASS1043
		CABLE HOLDER	AKT1012
		LED HOLDER	AMR1733
	J102	JUMPER WIRE	D15A05-200-2468
	CN2842	PLUG 3-P	KM250MA3
	CN2841	PLUG 5-P	KM250MA5B

FRONT INPUT ASSY (AWZ6003)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q5001 -Q5003		2SC1740S
	D5001 ,D5002		MTZJ15
CAPACITORS			
	C5001 -C5003 ,C5005		CEAS470M25
	C5006		CKCYF473Z50
RESISTORS			
	R5017		RD1/2PMFL101J
		Other Resistors	RD1/8PM□□□J
OTHERS			
		PIN JACK(1P)	AKB1111
		PIN JACK(1P)	AKB1112
		PIN JACK(1P)	AKB1113
		SOCKET	AKP1051
	CN5005	PLUG 9-P	KM250MA9

IR RECEIVER ASSY (AWZ6004)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q2871		2SC1740S
COIL			
	L2871		LAU221K
CAPACITOR			
	C2871		CEJA101M10
RESISTORS			
		All Resistors	RD1/8PM□□□J
OTHERS			
		CABLE HOLDER	AKT1012
		SHIELD CASE A(MET)	ANK7009

PRO S.G ASSY (AWZ6005)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC2226		NJM4558DXP
	Q2226		2SC1740S
CAPACITORS			
	C2227 ,C2228		CEAS101M10
	C2226 ,C2229		CEAS101M25
	C2232		CKCYF102Z50
	C2230		CKCYF473Z50
RESISTORS			
		All Resistors	RD1/8PM□□□J
OTHERS			
	CN2226	6P SOCKET	KP200IA6L

CENTER SP SW ASSY (AWZ6006)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC2921		MC14066BCP
	Q2924 -Q2926		2SA933S
	Q2921 -Q2923 ,Q2927		2SC1740S
	D2921 -D2926		HSS104-02
CAPACITORS			
	C2923		CEAS2R2M50
	C2924		CEAS470M25
	C2925		CKCYF103Z50
RESISTORS			
		All Resistors	RD1/8PM□□□J
OTHERS			
	CN2921	11P SOCKET	KP200IA11L

SUB RECEIVE ASSY (AWZ6007)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC1351		M5223P
CAPACITORS			
	C1351 -C1353		CKCYB103K50
	C1354		CKCYX104M16
RESISTORS			
		All Resistors	RD1/8PM□□□J
OTHERS			
		CABLE HOLDER	AKT1012
		SHIELD CASE B(MET)	ANK7010

EXT. SP ASSY (AWZ6008)

Mark	No.	Description	Parts No.
OTHERS			
		SPEAKER TERMINAL 4-P	AKE1030
	CN2911	PLUG 4-P	KM250MA4

CONVERGENCE PD ASSY (AWZ5991)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q2806		2SA933S
	Q2801 -Q2805 ,Q2807 ,Q2808		2SC1740S
	D2801	(LED : RED)	AEL1099
	D2802 -D2805		HSS104-02
CAPACITORS			
	C2806		CEANP010M50
	C2803		CEAS100M50
	C2804 ,C2805		CEAS101M10
	C2801		CEAS221M10
	C2802		CEAS2R2M50
RESISTORS			
		All Resistors	RD1/8PM□□□J
OTHERS			
	CN2801	5P SOCKET	KP200IA5L

P IN P ASSY (AWZ5992)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC3001		HA11569FS
	IC3002		HD49412FS
	IC3003		HM53461ZP-12
	IC3202		MC14066BCP
	IC3201		MC141622FU
	Q3001 ,Q3003 ,Q3016 ,Q3207 ,Q3208		2SA933S
	Q3214 ,Q3224 ,Q3226 ,Q3229		2SA933S
	Q3002 ,Q3008 ,Q3009 ,Q3012 -Q3014		2SC1740S
	Q3019 ,Q3201 -Q3206 ,Q3210 -Q3212		2SC1740S
	Q3215 ,Q3217 ,Q3219 -Q3223 ,Q3225		2SC1740S

Mark	No.	Description	Parts No.
	Q3227 ,Q3228 ,Q3230 ,Q3231		2SC1740S
	Q3004		XDC143ES
	D3001 ,D3005 ,D3006 ,D3203 -D3213		HSS104-02
	D3202		MTZJ15
	D3002 ,D3008 ,D3009 ,D3201		MTZJ6.8
	D3214 ,D3215		MTZJ6.8
COILS AND FILTERS			
	F3001	(F=14.3MH)	ATF1166
	F3002	(F=16.1MH)	ATF1167
	DL3001	(DELAY LINE)	ATN1022
	L3002 ,L3016 ,L3022	(BEAD FILTER)	ATX1008
	L3201		ATX1008
	L3004 ,L3012 ,L3201 ,L3208 ,L3210		LAU101K
	L3211		LAU101K
	L3013 ,L3014		LAU120K
	L3019		LAU150J
	L3204 -L3207		LAU150K
	L3009		LAU181K
	L3015		LAU1R2K
	L3008		LAU220K
	L3007		LAU221K
	L3001 ,L3003 ,L3006		LAU4R7K
	L3020 ,L3021 ,L3216		LAU4R7K
	L3215		LAU5R6K
	L3010		LAU680K
CAPACITORS			
	C3045 ,C3072		CCCCH100D50
	C3049 ,C3069		CCCCH220J50
	C3037 ,C3051		CCCCH470J50
	C3107		CCCCH560J50
	C3046		CCCCH680J50
	C3216 ,C3217		CCCSL080D50
	C3007 ,C3011 ,C3074 ,C3274		CCCSL101J50
	C3214 ,C3215 ,C3227		CCCSL121J50
	C3084		CCCSL150J50
	C3001 ,C3003 ,C3073 ,C3083 ,C3085		CCCSL151J50
	C3032		CCCSL220J50
	C3040 ,C3075 ,C3212 ,C3213		CCCSL330J50
	C3222 ,C3223 ,C3272		CCCSL330J50
	C3080 ,C3275		CCCSL470J50
	C3077 ,C3255		CCCSL820J50
	C3004 ,C3042 ,C3057 ,C3081 ,C3082		CEAS010M50
	C3242		CEAS010M50
	C3012 ,C3101 -C3104 ,C3106		CEAS0R1M50
	C3008 ,C3009 ,C3014 ,C3022 ,C3028		CEAS100M50
	C3043 ,C3055 ,C3059 ,C3066 ,C3070		CEAS100M50
	C3094 ,C3108 ,C3109 ,C3111		CEAS100M50
	C3115 ,C3116 ,C3201 ,C3209		CEAS100M50
	C3229 ,C3230 ,C3268		CEAS100M50
	C3002 ,C3005 ,C3018 ,C3086 ,C3238		CEAS101M10
	C3203 ,C3204 ,C3245 ,C3257		CEAS101M25
	C3220 ,C3225 ,C3228		CEAS102M6
	C3024 -C3026 ,C3052 ,C3067		CEAS2R2M50
	C3207 ,C3235 ,C3241 ,C3269 ,C3271		CEAS470M25
	C3276		CEAS470M25
	C3021 ,C3034 ,C3035 ,C3061		CEAS4R7M50
	C3020 ,C3039 ,C3048 ,C3065		CEASR22M50
	C3099		CEAS221M10
	C3078		CEAS221M16
	C3058		CEASR47M50
	C3205 ,C3224 ,C3264 ,C3270		CFTXA104J50
	C3277 ,C3278		CFTXA104J50
	C3017 ,C3047 ,C3050 ,C3054 ,C3239		CKCYB102K50

Mark	No.	Description	Parts No.
	C3265		CKCYB102K50
	C3273		CKCYB331K50
	C3266		CKCYB332K50
	C3100		CKCYB471K50
	C3029		CKCYB681K50
	C3010 ,C3013 ,C3019 ,C3023 ,C3027		CKCYF103Z50
	C3056 ,C3060 ,C3062 ,C3063 ,C3064		CKCYF103Z50
	C3098 ,C3110 ,C3114 ,C3117 ,C3202		CKCYF103Z50
	C3206 ,C3208 ,C3221 ,C3226		CKCYF103Z50
	C3232 -C3234		CKCYF103Z50
	C3236 ,C3237 ,C3246 ,C3253 ,C3256		CKCYF103Z50
	C3267		CKCYF103Z50
	C3006 ,C3030 ,C3038 ,C3044 ,C3071		CKCYX103M16
	C3076 ,C3079 ,C3113		CKCYX103M16
	C3112		CKCYX104M16
	C3053 ,C3068		CKCYX333M16
	C3031		CKCYX683M16
	C3015 ,C3036		CQMA152J50
	C3016 ,C3033		CQMA561J50
RESISTORS			
	R3232		RD1/2PMFL3R9J
	VR3002,VR3003	(470Ω)	ACP1039
	VR3001	(4.7k)	ACP1042
		Other Resistors	RD1/8PM□□□J
OTHERS			
		CABLE HOLDER	AKT1011
		CABLE HOLDER	AKT1012
		SHIELD CASE	ANK1202
		SHIELD PLATE	ANK1203
	X3003 ,X3004	CRYSTAL RESONATOR (3.579545MHz)	ASS1091
	X3001 ,X3002	CERAMIC RESONATOR (503kHz)	ASS1112

A CONNECTOR ASSY (AWZ5994)

Mark	No.	Description	Parts No.
OTHERS			
		CABLE HOLDER	AKT1007
		CABLE HOLDER	AKT1023
	J103	JUMPER WIRE	D15A09-075-2468
	J104	JUMPER WIRE	D15A11-075-2468
	CN2892	10P SOCKET	KP200IA10L
	CN2891	11P SOCKET	KP200IA11L

B CONNECTOR ASSY (AWZ5995)

Mark	No.	Description	Parts No.
OTHERS			
		CABLE HOLDER	AKT1007
		CABLE HOLDER	AKT1023
	CN2902	11P SOCKET	KP200IA11L
	CN2901	8P SOCKET	KP200IA8L

C CONNECTOR ASSY (AWZ5996)

Mark	No.	Description	Parts No.
OTHERS			
		CABLE HOLDER	AKT1011
		CABLE HOLDER	AKT1012
	J2	JUMPER WIRE	D15A05-150-2468
	J1	JUMPER WIRE	D15A13-150-2468
	CN3280	13P SOCKET	KP200IA13L
	CN3285	5P SOCKET	KP200IA5L

VM ASSY (AWZ5997)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q3311		2SA965
	Q3306		2SA985A
	Q3302 ,Q3307 -Q3310		2SC1740S
	Q3312		2SC2235
	Q3305		2SC2275A
	D3301 -D3304		HSS104-02
COILS AND FILTERS			
	L3301		LAU220K
CAPACITORS			
	C3309 ,C3310		CEAS010M50
	C3305		CEAS2R2M100
	C3301 ,C3303 ,C3315		CEAS470M25
	C3314		CEHAQ220M2C
	C3316		CKCYB102K50
	C3318		CKCYB472K50
	C3319 ,C3320		CKCYB561K500
	C3307 ,C3308 ,C3317		CKCYF103Z50
	C3313		CKDYF103Z500
	C3304 ,C3306		CQMA103K250
	C3312		CQMA104K250
RESISTORS			
	R3322		RD1/2PM2R7J
	R3318		RD1/2PMFL222J
	R3334 ,R3335		RD1/2PMFL2R2J
	R3315 ,R3317		RD1/2PMFL473J
	R3310		RD1/2PMFL560J
	R3321		RD1/2PMFL5R6J
	R3333		RD1/4PM561J
	R3323 ,R3324		RD1/4PMFL470J
	R3313		RD1/4PMFL2R2J
	R3319 ,R3320		RS1MMF331J
		Other Resistors	RD1/8PM☐☐☐J
OTHERS			
		HEAT SINK M	ANH-697
	CN3303	PLUG 3-P	KM250MA3
	CN3304	PLUG 3-P	KM250MA3R
	CN3301	PLUG 7-P	KM250MA7
		SCREW	PBZ30P080FMC

RELAY DRIVE ASSY (AWZ5999)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q101		2SA933S
	Q102 ,Q103 ,Q114 ,Q180		2SC1740S
	D107 ,D108 ,D137 ,D142 ,D188		HSS104-02
CAPACITORS			
	C112		CEAS100M50
	C107 ,C115 ,C183		CEAS470M25
RESISTORS			
		All Resistors	RD1/8PM☐☐☐J
OTHERS			
	CN106	8P SOCKET	KP200IA8L

SUB CONVERGENCE ASSY (AWZ6001)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC3551		NJM4558LD
	Q3551 ,Q3553 -Q3555 ,Q3557 ,Q3558		2SC1740S
	Q3560		2SC1740S
	Q3552 ,Q3556 ,Q3559		2SC3064
	D3559		HSS104-02
	D3551 -D3558		MTZJ12
CAPACITORS			
	C3551 ,C3554		CEAS101M10
	C3552 ,C3553		CKCYF473Z50
RESISTORS			
		All Resistors	RD1/8PM☐☐☐J
OTHERS			
	CN3551	6P SOCKET	KP200IA6L

☆ POWER SUPPLY ASSY (AWV1499 and AWV1500)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC201 ,IC301		NJM4558DXP
	IC101 ,IC102		PC817CD
	Q204 ,Q206 ,Q305 ,Q306		2SA1145
	Q107 ,Q111 ,Q201		2SA933S
X NSP	Q301 ,Q302		
	Q108 ,Q113 ,Q202 ,Q209		2SC1740S
X NSP	Q303		
	Q109 ,Q203		2SC2705
X NSP	Q304		
	Q205 ,Q307		2SC3332
	Q210		2SC4256
	Q110 ,Q112 ,Q207 ,Q308		2SD1276A
	Q105 ,Q106		2SD1835
⚠	Q208 ,Q309		2SD2300
	Q104		2SK1168
⚠	D213 ,D306		11DF2FD
	D101 ,D102 ,D104 ,D105 ,D148		1SS145
	D183 ,D184		1SS145
	D145 ,D150		AEL1099
	D106		D5SBA60
	D214 ,D217 ,D307		ES1F
	D127 ,D129 ,D130		FMP-G12S
	D116 -D123 ,D125 ,D126		HSS104-02
	D139 -D141 ,D182 ,D186 ,D187		HSS104-02
	D203 -D212 ,D218 -D220		HSS104-02
	D303 -D305 ,D311 ,D312		HSS104-02
	D135		HZS18-1L
	D115 ,D138 ,D180 ,D181		HZS18L
	D103 ,D134 ,D136		HZS6B1L
	D124		HZS6C2L
	D215 ,D216 ,D309 ,D310		RD12ESB
	D316 ,D317		RD12ESB
	D201		RD39ESB4
X NSP	D301		
X NSP	D302		
	D202		RD5.1ESB2
	D133		RD5.1ESB3
	D128		RL2Z
	D185		RL4Z
	D308		RU1
	D132		RU4A
	D189		S5688G
COILS			
	L101 ,L102	(2mH)	ATF1118
	L103	(1UH)	ATH-133
	L201	(7UH) DUMMY F.B.T	ATL1053
⚠	L202		ATL1089
	L104 -L111 ,L114 -L117	(FERRITE BEAD)	ATX1023
	L301		LTA272J

Mark	No.	Description	Parts No.
TRANSFORMERS			
	T102		ATK1079
	T101		ATT1194
⚠	T201 ,T301		ATK1045
⚠ X NSP	T302	(AWV1499)	
⚠ X NSP	T302	(AWV1500)	
SWITCHES AND RELAYS			
	RY101 ,RY102		ASR1036
CAPACITORS			
	C101 ,C102	(0.22/AC250)	ACE1104
	C132		ACG-032
	C110 ,C111 ,C113 ,C114	(0.01/AC250)	ACG-501
	C105 ,C106 ,C108 ,C109	(4700p/AC400)	ACG-505
	C222	(1000P/2k)	ACG1001
	C323	(680P/2k)	ACG1024
	C119 ,C122 ,C152 ,C219 ,C220	(4700p /2K)	ACG1028
	C120	(4.7/250)	ACH-378
⚠	C228 ,C319	(10/160)	ACH1117
	C135	(560/160)	ACH1146
	C118	(470/200)	ACH1147
	C116	(820/200)	ACH1148
	C312 ,C317		CCCSL101J50
	C214 ,C218 ,C314		CCCSL101K500
	C229		CCCSL181K500
	C129 ,C130 ,C156 ,C157 ,C181		CCCSL221K500
	C215		CEAS010M100
	C127 ,C202		CEAS010M50
	C304 ,C321		CEAS100M50
	C207		CEAS221M16
	C185		CEAS221M25
	C153		CEAS470M25
	C148 ,C205 ,C217 ,C306		CEHAQ010M50
	C211 ,C310		CEHAQ100M2C
	C145 ,C146 ,C149 ,C203 ,C204		CEHAQ100M50
	C327		CEHAQ100M50
	C103		CEHAQ102M25
	C313		CEHAQ220M16
	C325		CEHAQ220M25
	C322		CEHAQ220M2C
	C305 ,C309		CEHAQ221M10
	C150 ,C302		CEHAQ221M16
	C138		CEHAQ222M16
	C134		CEHAQ222M35
	C182		CEHAQ222M50
	C213		CEHAQ330M16
	C142		CEHAQ331M35
	C184 ,C187		CEHAQ332M16
	C133 ,C137		CEHAQ332M35
	C318		CEHAQ4R7M50
⚠	C324		CFPHW123H3D
	C225		CFPHW153H3D
⚠	C226		CFPMW824J2D
	C221		CFTYA474J50
	C301 ,C320		CKCYB102K50
	C216		CKCYB102K500
	C308		CKCYB331K50
	C210		CKCYB331K500
	C316		CKCYB392K500
	C147		CKCYB681K50
	C104 ,C307 ,C311		CKCYF103Z50
	C315		CKCYF222Z500
	C140 ,C141 ,C144 ,C151 ,C303		CKCYF473Z50
	C326		CKCYF473Z50
	C212		CKDYF103Z50
	C139 ,C143		CKDYF103Z500
	C201		CKDYF473Z50
	C126		CQMA102J50
	C125 ,C209 ,C227		CQMA103J50
	C206		CQMA223J50
	C208		CQMA471J50
	C121		CQMA473J50
	C223		CQPA683J200
RESISTORS			
	R102 ,R103	(2.2M, 1/2W)	ACN-208
	R349	(47, 1/2W)	ACN-225
	R247	(33k, 1/2W)	ACN1011
	R145 ,R158 ,R159	(1, 5W)	ACN1032
	R329 ,R346		RD1/2PM122J
	R257 ,R328		RD1/2PM152J
X NSP	R327		
	R321		RD1/2PM821J
	R126 ,R240		RD1/2PMFL103J
⚠	R326		RD1/2PMFL221J
	R252		RD1/2PMFL223J
	R123 ,R143 ,R166 ,R170 ,R234		RD1/2PMFL470J
	R336		RD1/2PMFL472J
⚠	R235		RD1/2PMFL473J
X NSP	R337		
X NSP	R307		
⚠	R344		RD1/4PMFL2R2J
	R232		RD1/4PMFL392J
⚠	R204 ,R218 ,R253 ,R302 ,R314		RD1/4PMFL3R9J
⚠	R222 ,R320		RD1/4PMFL470J
	R236 ,R338		RD1/4PMFL471J
⚠	R347 ,R348		RN1/2PC3902F
X NSP	R340		
	R121		RN1/4PC1001F
	R134 ,R136		RN1/4PC1603F
	R156		RN1/4PC2101F
	R157		RN1/4PC2431F
	R133		RN1/4PC3601F
	R122		RN1/4PC8200F
	R239		RS1LMF010J
	R142		RS1LMF100J
	R229		RS1LMF153J
	R180		RS1LMF272J
	R118		RS1LMF473J
⚠	R351		RS1LMFR22J
	R141		RS2LMF223J
	R230		RS3LMF010J
	R241 ,R242 ,R245		RS3LMF104J
⚠	R343		RS3LMF151J
	R209		RS3LMF153J
⚠	R358		RS3LMF822J
	R119 ,R120		RS3LMFR22J
⚠	R341		RS3LMFR47J
⚠	R331		RS3LMFR68J
	R128 ,R129		RT10PZ180K
X NSP	R304		
X NSP	R305 ,R308 ,R315		
X NSP	R312		
X NSP	R317		
X NSP	R318		
X NSP	R309 ,R313		
X NSP	R306 ,R319		
X NSP	R316		
X NSP	R342		
	VR101		VRTS6VS102
X NSP	VR301		
X NSP	VR302		

Mark	No.	Description	Parts No.
		Other Resistors	RD1/8PM☐☐☐J
OTHERS			
⚠	FU104	(6.3A/125V)	AEK-309
⚠	FU101	(8A/125A)	AEK1002
⚠	FU102 ,FU105	(4.0 A/125V)	AEK1018
	CN202	PLUG 3-P	AKM1055
	CN203 -CN205	PLUG 6-P	AKM1072
	CN102	PLUG 2-P	AKM1127
	CN201	PLUG 10-P	KM200IA10
	CN103	11P PLUG	KM200IA11
	CN105	8P PLUG	KM200IA8
	CN106	PLUG 3-P	KM250MA3
	CN301	PLUG 5-P	KM250MA5R
	CN104	PLUG 9-P	KM250MA9
	H101 -H104 ,H107 -H110	FUSE CLIP	AKR1003
		FUSE CLIP	ANH-697
		MICA SHEET	AEP-056
		BINDER	AEP-215
		HEAT SINK	ANH-880
		HEAT SINK B	ANH1021
		SHIELD CASE	ANH1165
		HEAT SINK	ANH1371
		HEAT SINK A	ANH1394
		SW HEAT SINK	ANH1505
		SCREW	ABA-234
		SCREW	ABA1099
		SCREW	ABZ30P100FMC
		SCREW	BBZ30P080FCU
		SCREW	BBZ30P080FZK
		SCREW	PBZ30P080FMC
		SCREW	PPZ40P120FMC
		SCREW	VPZ40P100FMC

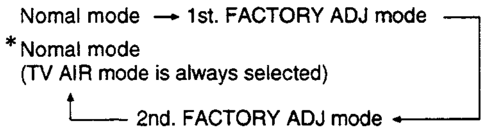
9. ADJUSTMENTS

- In this section,all items required to be adjusted on this unit are described in the order of the adjustments to be performed. (See section 9.2)
  For the adjustment items of each assembly,see section 9.1.
- When replacing the assemblies,be sure to use an assembly which works completely.
- Characters in parentheses ( ) beside an adjustment point are an abbreviation of the assembly containing that adjustment point.
  A : AV I/O ASSY
  C : CONVERGENCE ASSY
  F : FRONT CONTROL ASSY (For PRO-98)
  P : P IN P ASSY
  S : POWER SUPPLY ASSY
  U : U-COM ·TUNER ASSY
  VR1 : Focus variable resistor(VR1)
- The adjustment points and test points are shown in Fig.9-6 and 9-7 for each assembly.
- A test signal should be input to the laser disc terminal on the rear panel unless otherwise noted.
- Set the picture quality to standard unless otherwise noted.

● FACTORY ADJ mode

1.Entering FACTORY ADJ mode

The FACTORY ADJ mode of this unit is divided into the 1st FACTORY ADJ mode for performing adjustments and 2nd FACTORY ADJ mode used in the manufacturing process of the factory.
Each time the S4107(SD-P5185-K and 83 family) or S2847(PRO-98) switch is pressed through the small hole at the center of the front panel with a thin rod, the mode will change cyclically as follows.


Nomal mode
1st. FACTORY ADJ mode
*Nomal mode
(TV AIR mode is always selected)
2nd. FACTORY ADJ mode

* : When the mode is changed from FACTORY ADJ mode into nomal mode, the items are changed into the following;

- INPUT SELECTOR : TV

★ TV-CATV mode : AIR
★ Antenna selector : A
★ Closed caption and P IN P : OFF

- Picture quality : STANDARD
- Password code for channel lock : 0000

(For the password code,see pages 182 and 183.)

- Cnvergence adjustment:Initial position of user adjustment

Note:
The items marked with ★ are changed into the previous position when the MAIN POWER SW is OFF or AC power plug is unplugged from a wall socket.

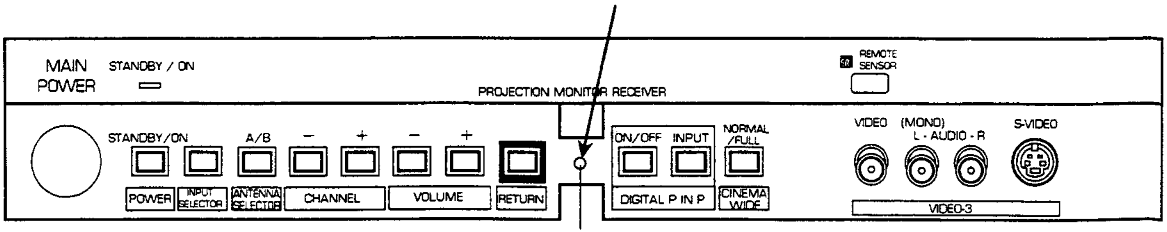
The 2nd FACTORY ADJ mode is used in the factory and not for servicing.

2. Operating 1st. FACTORY ADJ mode

When the unit enters 1st. FACTORY ADJ mode,ADJUSTMENT RANGE mode is first obtained.Every time the MUTE key on the remote control unit is pressed,the operation mode is switched from ADJUSTMENT RANGE mode to ADJUSTMENT OFFSET mode,ADJUSTMENT CONVERGENCE mode(not used),ADJUSTMENT GAME mode and ADJUSTMENT MPX mode,as shown in Fig.9-4.These modes are switched cyclically.
By pressing the following keys, the ADJUSTMENT mode can be switched directly.

- MENU key : ADJUSTMENT RANGE mode
- ▼ key : ADJUSTMENT OFFSET mode
- SET key : ADJ CONVERGE mode
- P IN P key : ADJUSTMENT MPX mode
- ◄ key : Not used (ADJ CONVERGE AUTO)

S4107(SD-P5185-K and 83 family) or S2847(PRO-98)


MAIN
POWER
STANDBY / ON
PROJECTION MONITOR RECEIVER
REMOTE SENSOR
STANDBY/ON
A/B
−
+
−
+
POWER
INPUT SELECTOR
ANTENNA SELECTOR
CHANNEL
VOLUME
RETURN
ON/OFF
INPUT
NORMAL /FULL
DIGITAL P IN P
CINEMA WIDE
VIDEO
(MONO)
L - AUDIO - R
S-VIDEO
VIDEO-3

Push the switch with thin rod.

Fig.9-1 Entering FACTORY ADJ mode

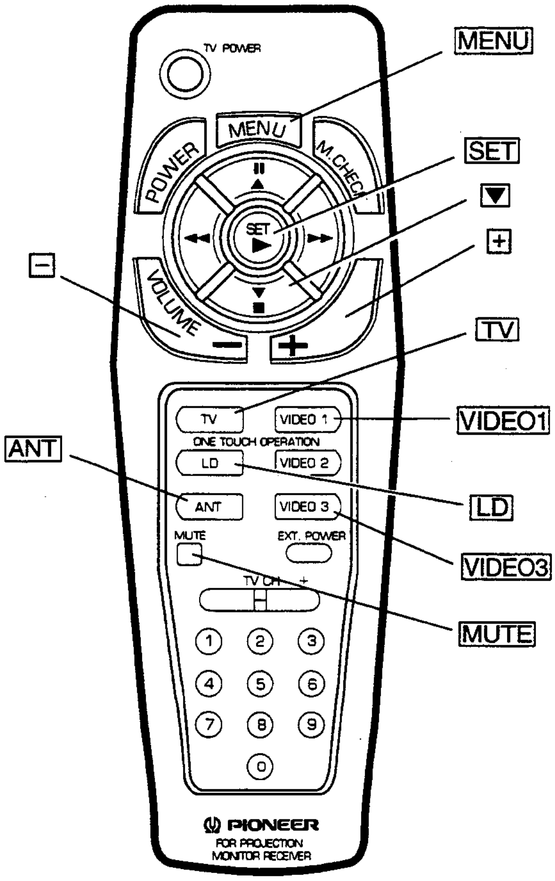

MENU
SET
▼
⊞
⊟
TV
VIDEO1
ANT
LD
VIDEO3
MUTE
TV POWER
POWER
M.CHECK
VOLUME
SET
VIDEO 1
ONE TOUCH OPERATION
LD
VIDEO 2
VIDEO 3
MUTE
EXT. POWER
TV CH
1
2
3
4
5
6
7
8
9
0
PIONEER
FOR PROJECTION MONITOR RECEIVER

Fig. 9-2 Key indications on the remote control unit of AXD1415(CU-SD092 : SD-P5185-K and PRO-98)

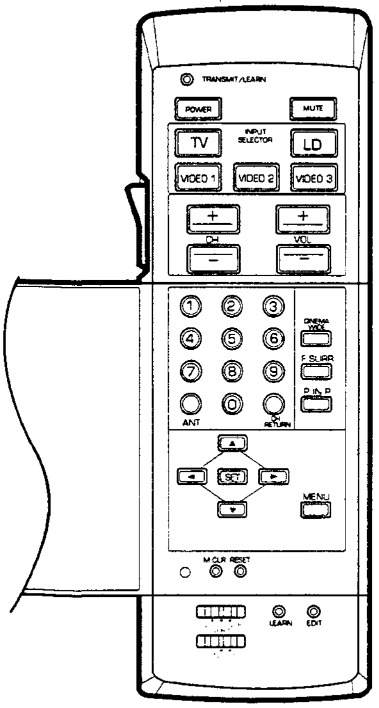

TRANSMIT/LEARN
POWER
MUTE
INPUT SELECTOR
TV
LD
VIDEO 1
VIDEO 2
VIDEO 3
CH
VOL
1
2
3
4
5
6
7
8
9
0
CINEMA WIDE
F.SLIRR
P IN P
ANT
RETURN
SET
MENU
M.CLR RESET
LEARN
EDIT

Fig. 9-3 Key indications on the remote control unit of AXD1416 (CU-SD091 : SD-P5183-K)
(The upper cover is opened.)

①ADJUSTMENT RANGE mode

The ADJUSTMENT RANGE mode is to check how much the picture and sound quality change.

● Function of the ADJUSTMENT RANGE mode

In this mode,adjustment functions are assigned to the numeric keys [1] through [5] of the remote control unit,as shown in Fig.9-4.Each numeric key corresponds to a particular adjustment function.Press the numeric key corresponding to the desired function and the selected function name will be displayed.To change the setting value,press the same key repeatedly and the setting value will change from CNT to MIN and MAX cyclically.When the TINT adjustment is selected,the meaning of the setting values change as follows:

● TINT

CNT :Center
↓
MIN :The color to purple
↓
MAX :The color to green

By pressing the numeric keys [7] to [9] and [0], the VOLUME can be set to the following values.

[7] Key : VOL20
[8] Key : VOL30
[9] Key : VOL40
[0] Key : VOL 0

②ADJUSTMENT OFFSET mode

(PIONEER's standard setting mode)

ADJUSTMENT OFFSET mode is to set the standard picture quality (**PIONEER**'s standard)for a normal picture.

● Function of the ADJUSTMENT OFFSET mode

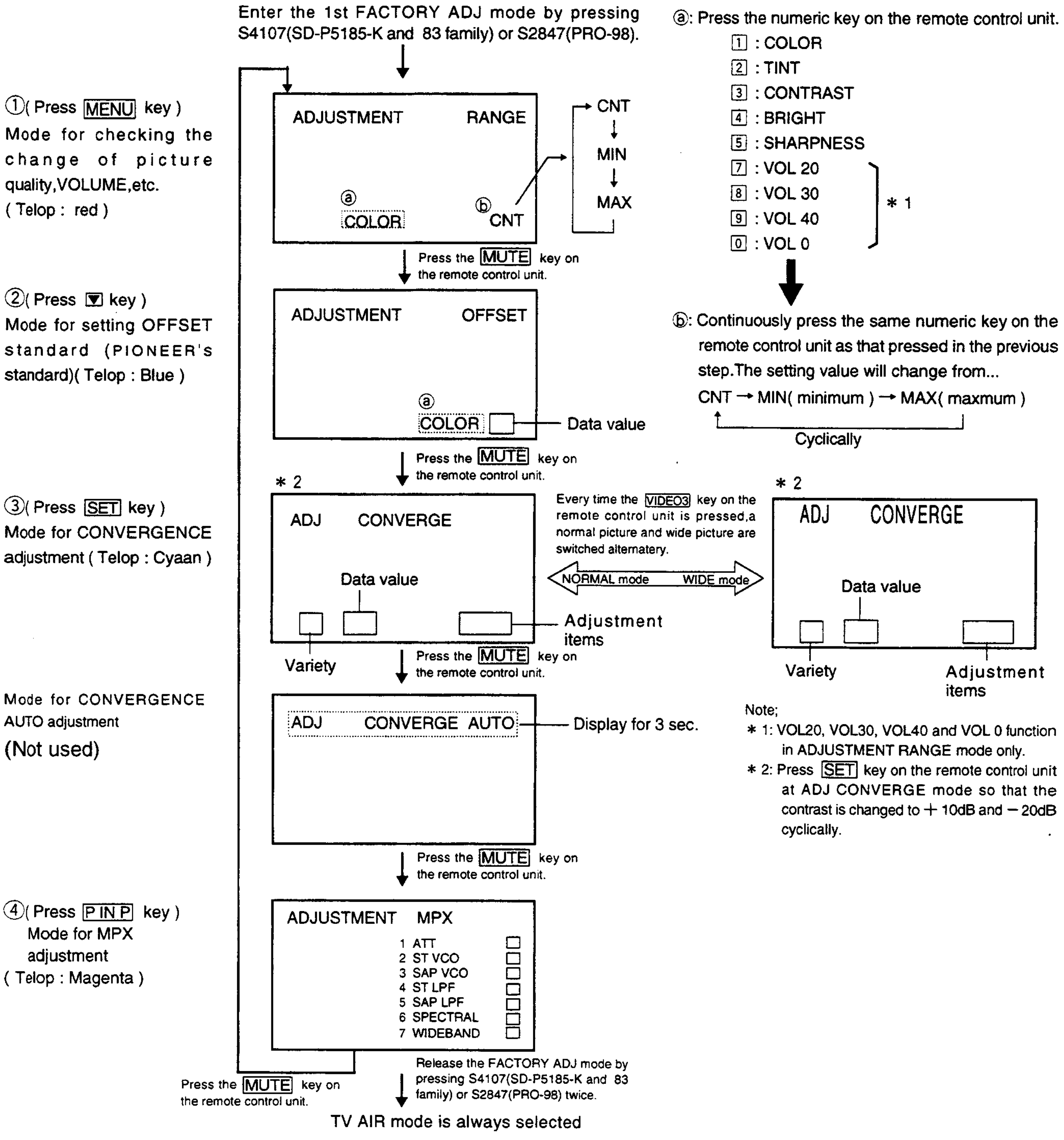
To adjustment picture quality,press one of the numeric keys [1] through [5],and an item to be adjusted such as color,sharpness,etc.,assigned to the pressed button is selected and will appear on the screen,as shown in Fig.9-4. To change the setting value,press the VOL (⊞, ⊟) keys until the desired value appears on the screen.
The setting picture quality on this mode will become the picture quality when setting the AV MEMORY to STANDARD on the normal screen.

③ADJ.CONVERGENCE mode

ADJ.CONVERGENCE mode is for setting convergence.
For details,see section "9.4 CONVERGENCE ADJUSTMENTS."

④ADJUSTMENT MPX mode

This mode is used for adjusting the TV tuner MPX decoder section.


Enter the 1st FACTORY ADJ mode by pressing S4107(SD-P5185-K and 83 family) or S2847(PRO-98).
①(Press MENU key)
Mode for checking the change of picture quality,VOLUME,etc.
(Telop : red)
ADJUSTMENT RANGE
ⓐ COLOR
ⓑ CNT
CNT
MIN
MAX
Press the MUTE key on the remote control unit.
②(Press ▼ key)
Mode for setting OFFSET standard (PIONEER's standard)(Telop : Blue)
ADJUSTMENT OFFSET
ⓐ COLOR
Data value
Press the MUTE key on the remote control unit.
③(Press SET key)
Mode for CONVERGENCE adjustment (Telop : Cyaan)
* 2
ADJ CONVERGE
Data value
Variety
Adjustment items
Every time the VIDEO3 key on the remote control unit is pressed,a normal picture and wide picture are switched alternatery.
NORMAL mode
WIDE mode
* 2
ADJ CONVERGE
Data value
Variety
Adjustment items
Press the MUTE key on the remote control unit.
Mode for CONVERGENCE AUTO adjustment
(Not used)
ADJ CONVERGE AUTO
Display for 3 sec.
Press the MUTE key on the remote control unit.
④(Press P IN P key)
Mode for MPX adjustment
(Telop : Magenta)
ADJUSTMENT MPX
1 ATT
2 ST VCO
3 SAP VCO
4 ST LPF
5 SAP LPF
6 SPECTRAL
7 WIDEBAND
Press the MUTE key on the remote control unit.
Release the FACTORY ADJ mode by pressing S4107(SD-P5185-K and 83 family) or S2847(PRO-98) twice.
TV AIR mode is always selected

ⓐ: Press the numeric key on the remote control unit.

1 : COLOR
2 : TINT
3 : CONTRAST
4 : BRIGHT
5 : SHARPNESS
7 : VOL 20 } * 1
8 : VOL 30 } * 1
9 : VOL 40 } * 1
0 : VOL 0 } * 1

ⓑ: Continuously press the same numeric key on the remote control unit as that pressed in the previous step.The setting value will change from...
CNT → MIN(minimum) → MAX(maxmum)
Cyclically

Note;
* 1: VOL20, VOL30, VOL40 and VOL 0 function in ADJUSTMENT RANGE mode only.
* 2: Press SET key on the remote control unit at ADJ CONVERGE mode so that the contrast is changed to + 10dB and − 20dB cyclically.

Fig. 9-4 Operating FACTORY ADJ mode

9.1 ADJUSTMENTS REQUIRED WHEN AN ASSEMBLY IS REPAIRED OR REPLACED

Note: For the method of adjustment,see section "9.2 Adjustment method." A number in parentheses indicates the step number in section "9.2 Adjustment method."

9.1.1 When POWER SUPPLY ASSY was Repaired

1. (Step 1) 135V power supply adjustment
2. (Step 7) Focus VR adjustment
3. (Step 9) Horizontal size adjustment
4. (Step 10) Convergence adjustment
5. (Step 12) White balance adjustment

9.1.2 When POWER SUPPLY ASSY was Replaced

- ● Adjustments of (Step 9), (Step10) and (Step12)

9.1.3 When U-COM ·TUNER ASSY was Repaired

(1)When the video block was repaired

1. (Step3) Brightness adjustment
2. (Step12) White balance adjustment
3. (Steps16 through19) Pioneer's standard settings

(2)When the microcomputer block was repaired

1. (Step2) Contrast coarse adjustment
2. (Step3) Brightness adjustment
3. (Step13) Test-cross H-center position adjustment
4. (Step14) Blue tailing adjustment
5. (Step16 throgh19) Pioneer's standard settings

Reset the other items such as the tuner preset channels,convergence,etc. which should be set by the user.

(3)When the tuner block was repaired

1. (Step15) Tuner block adjustment

(4)When the audio block was repaired

No adjustment is required.

9.1.4 When U-COM ·TUNER ASSY was Replaced

All the above adjustments except for the test-cross H-center position adjustment and tuner adjustment are required.

9.1.5 When CONVERGENCE ASSY was Repaired or Replaced

1. (Step 8) Vertical size adjustment
2. (Step 9) Horizontal size adjustment
3. (Step10) Convergence adjustment

9.1.6 When R.,G.or B.CRT DRIVE ASSY was Repaired or Replaced

- ● Check the white balance.If the white balance is not correct,perform white balance adjustment (Step12).

9.1.7 When P IN P ASSY was Repaired

1. (Step20) Y-signal level adjustment of sub-picture
2. (Step21) TINT adjustment of sub-picture
3. (Step22) Color level adjustment of sub-picture
4. (Step23) Write clock adjustment
5. (Step24) Read clock adjustment

9.1.8 When P IN P ASSY was Replaced

- ● No adjustment is required

9.1.9 When AV I/O ASSY was Repaired

- ● (Step11) Wide mute1 adjustment

9.1.10 When AV I/O ASSY was Replaced

- ● No adjustment is required

9.1.11 When FRONT CONTROL ASSY was Repaired (PRO-98 only)

- ● (Step25) DPO sensitivity adjustment

9.1.12 When FRONT CONTROL ASSY was Replaced

- ● No adjustment is required.

9.1.13 When RF AMP ASSY was Repaired (SD-P5185-K and PRO-98 only)

- ● (Step26) Sensitivity of remote control signal receiver adjustment

Note:

As this adjustment requires the unit checker used in factories,it cannot be performed at the servicing site.

This adjustment must be performed if RF AMP ASSY parts with the reference numbers shown below are replaced.

Therefore do not replace these parts the whole RF AMP ASSY.

Reference No. of Parts Requiring Adjustment when Replaced.
IC2501 , IC2502 , IC2504
TC2501
C2514 , C2520
X2501

9.1.14 When RF AMP ASSY was Replaced

- ● No adjustment is required.

9.1.15 When CRT ASSY R,G or B was Replaced

Notes:

- • For details on replacing a CRT ASSY,see section "10. Replacing the CRT ASSY."
- • When one or two tubes were replaced,perform the adjustment referring to the tube not replaced.If a CRT ASSY for a color other than green was replaced,be sure to adjust the following items referring to the green.

1. (Step4) Deflection yoke lean adjustment
2. (Step5) Screen center adjustment
3. (Step7) Focus VR adjustment
4. (Step10) Convergence adjustment
5. (Step12) White balance adjustment
6. (Step16 through 19) Pioneer's standard settings

9.1.16 When Lens ASSY was Replaced

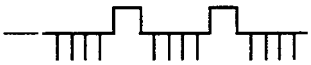
1. (Step6) Focus adjustment of Lens assembly
2. (Step10) Convergence adjustment

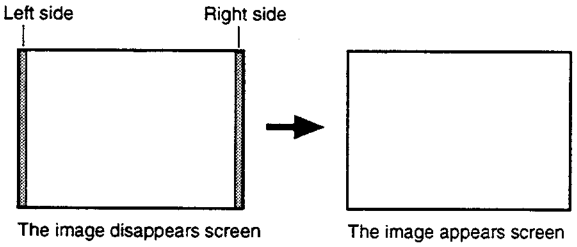
9.1.17 When Other ASSY was Repaired or Replaced

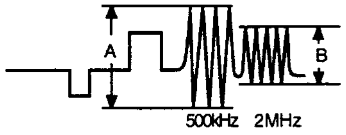
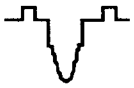
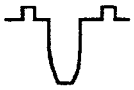
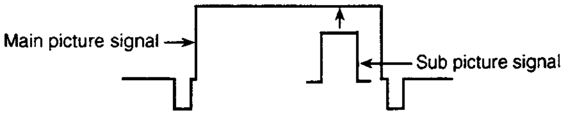
- ● No adjustment is required.

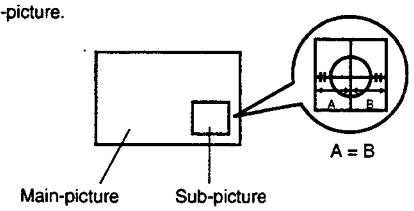
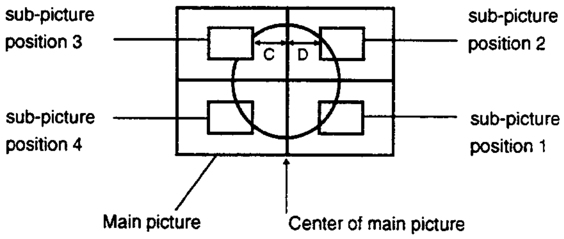
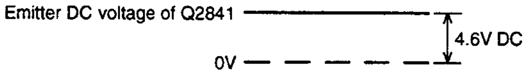
9.2ADJUSTMENT METHOD

- Adjustment points and test points are shown in Fig.9-6 and 9-7.
- Perform the adjustment for standard picture quality unless otherwise noted.
- For information on 1st FACTORY ADJ mode,see pages 113 through 115.

STEP NO.	Adjustment Item	Input Signal	Adjustment point	Adjustment Prdcedure
1	135V power supply adjustment	Color bar	VR101(S)	Adjust the voltage at D132 cathode on the POWER SUPPLY ASSY to 135V ± 1V.
2	Contrast coarse adjustment	—	CONTRAST (remote control unit)	Note:Perform this adjustment only when a data memory IC (IC901:AT24C08-10PC) on a U-COM·TUNER ASSY was replsced or when the contrast of ADJUSTMENT OFFSET in FACTORY ADJ mode is extremely shifted. ● Activate ADJUSTMENT OFFSET mode of 1st FACTRY ADJ mode.(telop:blue) ● Press the [3] key on the remote control unit to select CONTRAST. ● Press the VOL ⊞ or ⊟ keys so that the telop shows about 0.
3	PIONEER's standard settings Brightness adjustment	Cross hatch	BRIGHT (remote control unit)	● Pless the [4] key on the remote control unit to select BRIGHT in ADJUSTMENT OFFSET mode of 1st FACTORY ADJ mode. ● Adjust the cut off level at TP-GK on the G.CRT DRIVE ASSY to 190V DC ± 1V. cut off level (190V DC) 
4	Deflection yoke lean adjustment	Cross signal (or generate a test cross signal for convergence adjustment by applying a free signal.)	Deflection yoke mounting position of replaced CRT assembly (left and right lean)	Note1: This adjustment should be done in NORMAL mode. Note2: This adjustment is required when a CRT assembly and deflection yoke were replaced. ● Loosen the fixing screw of the deflection yoke for the color to be replaced and turn the adjustment point right and left so that the lean parts of the vertical and horizontal lines at the center of the screen align with the lines of a color not replaced. ● After adjustment, tighten the fixing screw for the daflection yoke.
5	Screen center adjustment	Cross signal (or generate a test cross signal for convergence adjustment by applying a free signal.)	Centering magnet of the deflection yoke of replaced CPT assembly (see Fig.9-7)	Note1: This adjustment should be done in NORMAL mode. Note2: This adjustment is to adjust the center point of the screen when a CRT assembly and deflection yoke were replaced. For red or blue adjustment,turn 1st FACTORY ADJ mode ON and then OFF to place the convergence POSITION at the center of the adjustable range. ● Move the centering magnet of the deflection yoke for the replaced color so that the horizontal and vertical lines at the center of the screen align with the lines for a color not replaced.
6	Focus adjustment of Lens assembly	Cross hatch	Lens assembly mounted to replaced CRT assembly	To the adjust the lens assembly, remote the screen frame block, and attach a piece of translucent paper such as tracing paper with tape as shown in Fig.9-7. ● Move the lens assembly left and right as shown in Fig.9-7 until the best focusing is obtained.
7	Focus VR adjustment	Cross hatch	Focus VR (VR1)	● Turn the forcus VR for best focusing. ● Repeat adjustments for the lens assembly and focus VR.

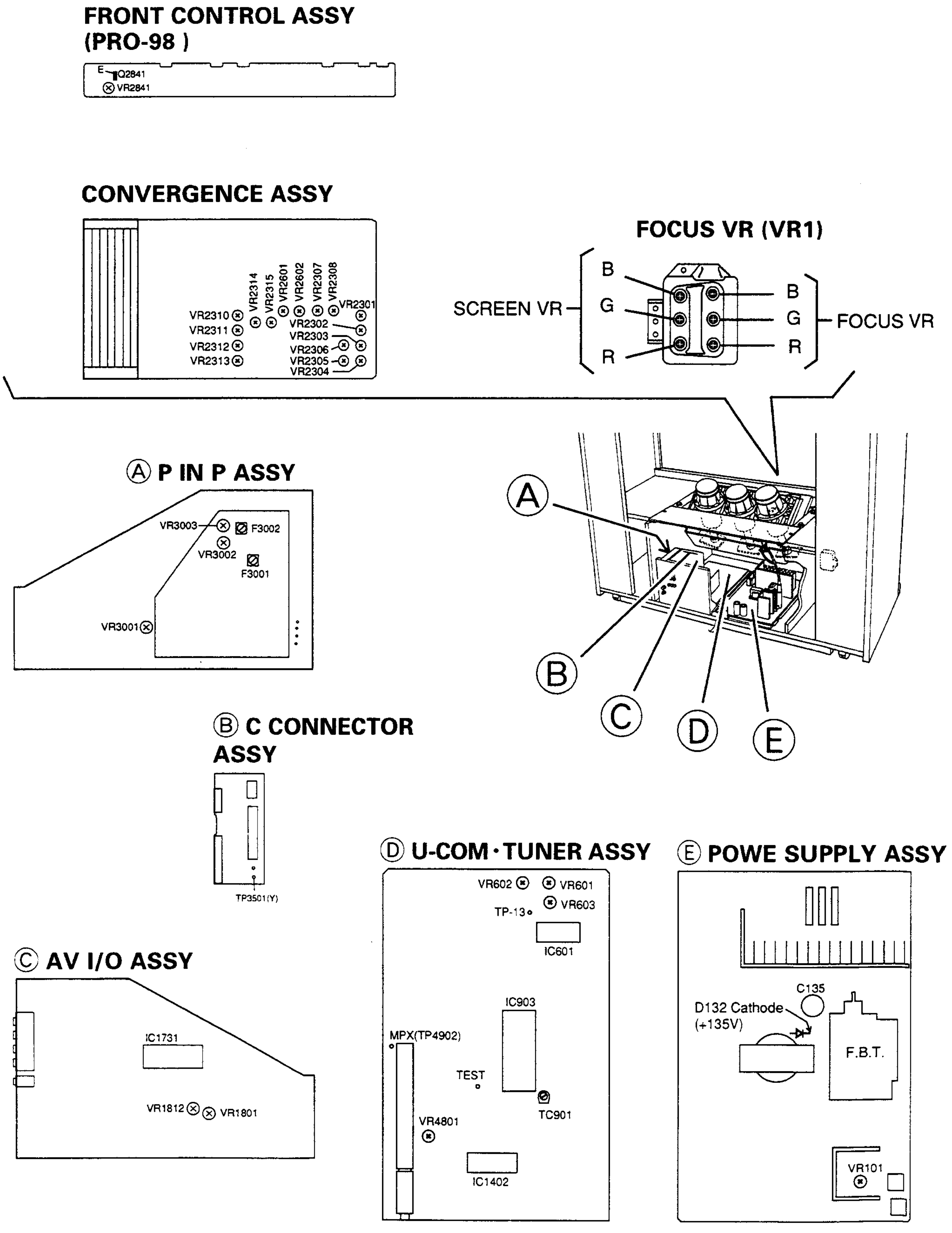
STEP NO.	Adjustment Item	Input Signal	Adjustment point	Adjustment Prdcedure
8	Vertical size adjustment	Monoscope or general broadcasting	NORMAL: VR2601(C), WIDE: VR2602(C)	● When a monoscope signal is used, adjust the size so that the following value is obtained. Normal mode : 90% ± 3%, Wide mode : 77% ± 3% When general broadcasting is used, adjust the size so that the picture is completely displayed on the screen. Note: Perform the adjustment for a NORMAL screen,and then for a WIDE screen.
9	Horizontal size adjustment	Monoscope or general broadcasting	NORMAL: VR2307(C), WIDE: VR2308(C)	● When a monoscope signal is used, adjust the size so that the following value is obtained. Normal mode : 94% ± 2%, Wide mode : 90% ± 3% When general broadcasting is used, adjust the size so that the picture is completely displayed on the screen. Note: Perform the adjustment for a NORMAL screen,and then for a WIDE screen.
10	Convergence adjustment	Cross hatch	Adjustment using the remote control unit	● Adjust so that the green cross hatch display normally appears on the screen with only the green CRT drive activated. ● Adjust the red line so that it aligns with the green line on the cross hatch screen with the green and red CRT drives activated. ● Adjust the blue line so that it aligns with a green line on the cross hatch screen with the green and blue CRT drives activated. Note:For details on the convergence adjustment, see section "9.4 CONVERGENCE ADJUSTMENT"
11	Wide mute1 adjustment ·SUB U-COM adjustment 1st ·SUB U-COM adjustment 2nd	Free video signal	VR1801(A) VR1812(A)	● Set the CINEMA WIDE mode to FULL CINEMA. ● Adjust VR1812 so that the left side of the image disappears. ● Turn VR1812 in the opposite direction of the above until the left side of the image appears. ● Adjust VR1801 so that the right side of the image disappears. ● Turn VR1801 in the opposite direction of the above until the right side of the image appears.  Left side Right side The image disappears screen The image appears screen
12	White balance adjustment	Color bar signal without color signal	ScreenVR(VR1), VR601(U) (Blue drive VR) VR602(U) (Red drive VR)	● Adjust the screen VR (red or blue) so that the dark part of the screen becomes gray. Do not move the screen VR(green). ● Adjust the drive VRs(red or blue) so that the bright part of the screen becomes white.
13	Test cross H-center position adjustment	Free video signal	TC901(U)	● Set the test cross screen for adjusting the convergence position.(For user) ● Adjust the position so that the test cross is placed at the center of the screen.
14	Blue tailing adjustment	Cross signal	VR603(U)	● Adjust the SG output of the input cross signal to maximum level. ● Set the contrast to maximum using the remote control unit. ● Turn VR603 fully counterclockwise. (Blue tailing appears) ● Adjust the vertical line of the cross on the screen so that blue tailing disappears.

<table>
<tr><th>STEP NO.</th><th colspan="2">Adjustment Item</th><th>Input Signal</th><th>Adjustment point</th><th>Adjustment Prdcedure</th></tr>
<tr><td>15</td><td colspan="2">Tuner block adjustment</td><td colspan="3">The audio section in the tuner block is adjusted.
For the items to be adjusted, see section "9.5 TUNER SECTION."</td></tr>
<tr><td colspan="6">● Set to the ADJUSTMENT OFFSET mode of 1st FACTORYADJ mode (Telop:Blue)</td></tr>
<tr><td>16</td><td rowspan="5">PIONEER's standard settings</td><td>Sharpness adjustment</td><td>Multiburst</td><td>SHARPNESS (Remote control unit)</td><td>● Adjust the ratio of A (peak-to-peak value of 500kHz) to B (peak-to-peak value of 2 MHz)at TP-13 on the TUNER-VIDEO ASSY to A : B = 1.55 : 1 . Adjustment screen to optimum condition.
A : B = 1.55 : 1
 </td></tr>
<tr><td>17</td><td>Color adjustment</td><td rowspan="3">Color bar</td><td>COLOR (Remote control unit)</td><td>Adjustment screen to optimum condition.</td></tr>
<tr><td>18</td><td>Tint adjustment</td><td>TINT (Remote control unit)</td><td>Adjustment screen to optimum condition.</td></tr>
<tr><td rowspan="2">19</td><td rowspan="2">Contrast adjustment</td><td>CONTRAST (Remote control unit)</td><td>Adjustment screen to optimum condition.</td></tr>
<tr><td>Normal video signal</td><td>—</td><td>At the TP-BK of B.CRT assy, check that the signal is shaped as shown below.
Shapely waveform
Shapeless waveform</td></tr>
<tr><td colspan="6">● Set the FACTORY ADJ mode to OFF and picture-in-picture function to ON.
● Supply the same signal to both the main and sub pictures.</td></tr>
<tr><td>20</td><td colspan="2">Y-signal level adjustment of sub-picture</td><td>100% white</td><td>VR3002(P)</td><td>Observe the waveform at TP3501(Y) of the C CONNECTOR ASSY and adjust the 100% white position of the sub-picture so that it aligns with that of the main-picture.
 </td></tr>
<tr><td>21</td><td colspan="2">TINT adjustment of sub-picture</td><td rowspan="2">Color bar</td><td>VR3001(P)</td><td>Adjust the TINT of the sub-picture to optimum condition.</td></tr>
<tr><td>22</td><td colspan="2">Color level adjustment of sub-picture</td><td>VR3003(P)</td><td>Adjust the color level of the sub-picture to optimum condition.</td></tr>
</table>

STEP NO.	Adjustment Item	Input Signal	Adjustment point	Adjustment Prdcedure
23	Write clock adjustment	Monoscope signal	F3001(P)	Adjust the position so that the center of monoscope signal is placed at the center of the sub-picture.  A B A = B Main-picture Sub-picture
24	Read clock adjustment		F3002(P)	● Shift (* 1) the position of sub-picture and measure the margins C at position 3 and D at position 2 from center of main-picture. ● Adjust the margins C and D so that the margins to equal.  sub-picture position 3 sub-picture position 2 C D sub-picture position 4 sub-picture position 1 Main picture Center of main picture
25	DPO sensitivity adjustment (PRO -9 8 only)	—	VR2841(F)	Note: This adjustment is to set the sensitivity of the DPO sensor. adjust the value as per the customer's request. The adjusting procedure at the factory is shown below for your reference. ● Illuminate the DPO sensor from the rectangular position to the sensor surface using an incandescent lamp with luminance of 50 lux at the sensor surface. ● Adjust the emitter voltage of Q2841 on the FRONT CONTROL ASSY to 4.6V ± 0.3V.  Emitter DC voltage of Q2841 4.6V DC 0V
26	Sensitivity of remote control signal adjustment (PRO -9 8 only)	—	TC2501(R)	Note: As this adjustment requires the unit checker used in factories,it cannot be performed at the servicing site. This adjustment must be performed if RF AMP ASSY parts with the reference numbers shown below are replaced. Therefore do not replace these parts the whole RF AMP ASSY. Reference No. of Parts Requiring Adjustment when Replaced. IC2501 , IC2502 , IC2504 TC2501 C2514 , C2520 X2501

* 1: To shift the position of the sub picture, use the MENU screen and remote control unit as the following:

● Press MENU key → Set **PINP** by ◀ , ▶ keys → Press SET key
Shift the position by SET key ← Set **SHIFT** by ▲ , ▼ keys ←



FRONT CONTROL ASSY (PRO-98)

E
Q2841
VR2841

CONVERGENCE ASSY

VR2310
VR2311
VR2312
VR2313
VR2314
VR2315
VR2601
VR2602
VR2307
VR2308
VR2301
VR2302
VR2303
VR2306
VR2305
VR2304

FOCUS VR (VR1)

SCREEN VR
B
G
R
B
G
R
FOCUS VR
A
B
C
D
E

Ⓐ P IN P ASSY

VR3003
F3002
VR3002
F3001
VR3001

Ⓑ C CONNECTOR ASSY

TP3501(Y)

Ⓒ AV I/O ASSY

IC1731
VR1812
VR1801

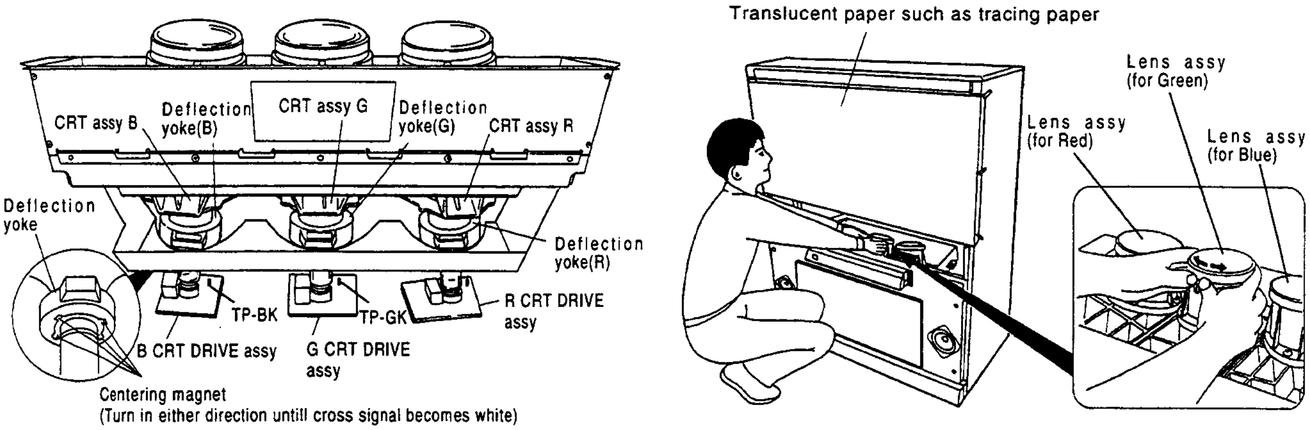
Ⓓ U-COM·TUNER ASSY

VR602
VR601
VR603
TP-13
IC601
IC903
MPX(TP4902)
TEST
TC901
VR4801
IC1402

Ⓔ POWE SUPPLY ASSY

C135
D132 Cathode
(+135V)
F.B.T.
VR101

Fig.9-5 Adjustment point(1)


CRT assy B
Deflection yoke(B)
CRT assy G
Deflection yoke(G)
CRT assy R
Deflection yoke
Deflection yoke(R)
TP-BK
TP-GK
R CRT DRIVE assy
B CRT DRIVE assy
G CRT DRIVE assy
Translucent paper such as tracing paper
Lens assy (for Green)
Lens assy (for Red)
Lens assy (for Blue)

Centering magnet
(Turn in either direction untill cross signal becomes white)

Note: Turn the centering magnet with care because it is fragile.

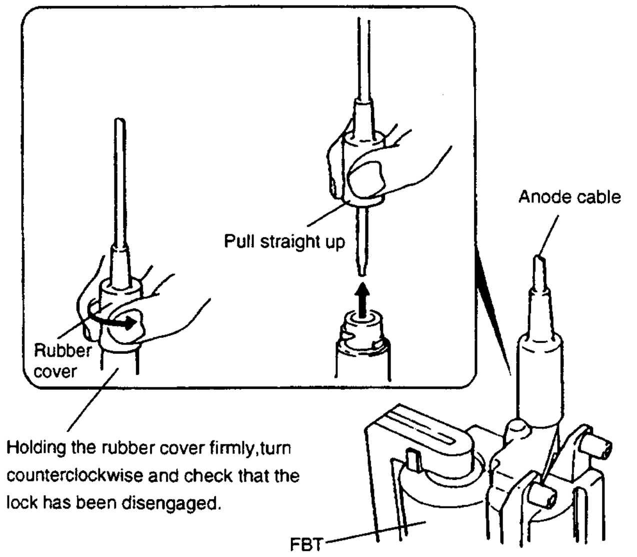
Fig.9-6 Adustment point(2)

7.3 ANODE VOLTAGE MEASURING METHOD

Disconnect the FBT anode cable as outlined in Fig. 7-5. Measure at the point where the cable enters the FBT.

Caution: Take extra precaution when measuring this high voltage. High voltages are also present in surrounding circuit boards (CRT DRIVE assembly, POWER SUPPLY assembly).

SERVICEMAN WARNING
Before removing the anode cable,turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.


Pull straight up
Rubber cover
Anode cable
FBT

Holding the rubber cover firmly,turn counterclockwise and check that the lock has been disengaged.

Note:When reconnecting the cable,proceed in the reverse order.
After reconnecting,tug on the cable to check that it is secure.

Fig.9-7 Disconnecting the anode cable

9.4 CONVERGENCE ADJUSTMENT

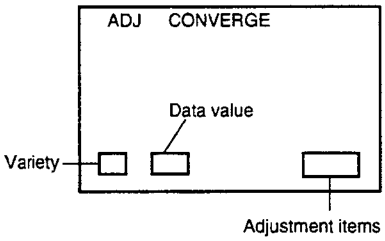
9.4.1 Adjustment Method for Convergence

Perform the adjustment in ADJ. CONVERGE of FACTORY ADJ mode.(For how to enter the FACTORY ADJ mode,see section "FACTORY ADJ mode" on page 113.)

- **Green line convergence adjustment**
  Adjust the green line convergence with VRs on the CONVERGENCE ASSY.
- **Red or blue line convergence adjustment**
  Perform the following adjustment using the remote control unit.
  - Operating procedure
    Alphabetics shown in the lower-left portion of the screen indicate the type of convergence. Change the type by pressing the ANT (or CH RETURN) key on the remote control unit. Every time the ANT (or CH RETURN) key is pressed,the type changes in the order.
    → RH → RV → BH → BV ┐ cyclically

The characters to the right of the type indicate the setting value,and can be changed with the VOL (+,−) keys on the remote control unit. It the lower-right portion of the screen,the adustment items are displayed. The items are assigned to the numeric keys from 0: STATIC to 9 : SUB LIN, on the remote control unit.

- **To output red,green and blue separately**
  - To output red ON/OFF: Press the TV key on the remote control unit.
  - To output green ON/OFF: Press the LD key on the remote control unit.
  - To output Blue ON/OFF: Press the VIDEO1 key on the remote control unit.



- Variety
  → RH (Red · Horizontal)
  ↓
  RV (Red · Vertical)
  ↓
  BH (Blue · Horizontal)
  ↓
  BV (Blue · Vertical) ┘

- Data value
  Adjust the value by pressing the VOL(+,−) keys on the remote control unit.
- Adjustment items
  (assigned to the numeric keys)

0 : STATIC
1 : SKEW
2 : BOW → 4TH BOW ┐
3 : SUB KEY
4 : KEY → MID KEY ┐
5 : SUB PIN → M S PIN → 4 S PIN → S C PIN ┐
6 : PIN → MID PIN → 4TH PIN ┐
7 : LIN → 4TH LIN ┐
8 : SIZE
9 : SUB LIN

Fig.9-8 Adjustment method for convergence

Numeric keys	Adjustment items	Type GH	GV	RH	RV	BH	BV
|0|	STATIC	/	/	○	○	○	○
|1|	SKEW	/	VR	○	○	○	○
|2|	BOW ↓	/	VR	○	○	○	○
	4TH BOW	/	/	○	/	○	/
|3|	SUB KEY	/	/	○	○	○	○
|4|	KEY ↓	VR	VR	○	○	○	○
	MID KEY	/	/	/	○	/	○
|5|	SUB PIN ↓	/	/	○	○	○	○
	M S PIN ↓	/	/	○	/	○	/
	4 S PIN ↓	/	/	○	/	○	/
	S C PIN	/	/	/	○	/	○
|6|	PIN ↓	VR	VR	○	○	○	○
	MID PIN ↓	/	/	○	○	○	○
	4TH PIN	/	/	○	○	○	○
|7|	LIN ↓	/	/	○	○	○	○
	4TH LIN	/	/	○	/	○	/
|8|	SIZE	/	/	○	○	○	○
|9|	SUB LIN	/	/	○	○	○	○

○ = yes,/ = No, VR = Adjust GH, GV with a semifixed VR.

9.4.2 Green Line Adjustment

- A green line is a reference line for the red and blue lines.
  Be sure to adjust precisely.
- Perform the green line adjustment with a single green color.
- For information on blocks which are referred to in some operation columns,see Fig.9-9 and 9-13.
- Adjust in ADJ. CONVERGE NORMAL mode, then in ADJ. CONVERGE WIDE mode.

Step No.	Adjustment item		Adjustment point	Adjustment Procedure
1	Center line adjustment	GV-SKEW	VR2301 (N) VR2310 (W)	Ajust so that the center horizontal line of the screen is not leaned.
2		GV-BOW	VR2302 (N) VR2311 (W)	Ajust so that the center horizontal line of the screen is straight.
3	Repeat steps 1 and 2 to obtain the optimum center horizontal lines.			
4	Distortion adjustment	GV-PIN	VR2304 (N) VR2313 (W)	Ajust so that the horizontal lines in the E block of the screen are straight.
5		GH-PIN	VR2305 (N) VR2315 (W)	Ajust so that the vertical lines in the B and C blocks on the screen are straight.
6	Lean adjustment	GV-KEY	VR2303 (N) VR2312 (W)	Ajust so that the horizontal lines in the E block of the screen are not leaned.
7		GH-KEY	VR2306 (N) VR2314 (W)	Ajust so that the vertical lines in the B and C blocks on the screen are not leaned.
8	Repeat steps 4 through 7 and then 1 through 7 to obtain the optimum lines.			

Note; (N) : At ADJ. CONVERGE NORMAL
(W) : At ADJ. CONVERGE WIDE

9.4.3 Red line Adjustment

- Adjust the red line convergence using a green line and red line.
- Adjust it by overlaying a red line on a green line using the VOL (⊞ , ⊟) keys on the remote control unit so that the line becomes yellow.
- For information on blocks which are referred to in some operation columns,see Fig.9-9 and 9-13.
- Adjust in ADJ. CONVERGE NORMAL mode, then in ADJ. CONVERGE WIDE mode.
- After making the adjustments for all items,perform fine adjustment referring to the whole screen.

● Red Adjustment In the Horizontal Direction

Step No.	Adjustment item		Adjustment Procedure
1	Center line adjustment	RH-SKEW	Ajust so that the center vertical line of the screen is not leaned.
2		RH-BOW	Adjust so that the center vertical line of screen is not distorted and is straight.
3		RH-4TH BOW	
4		RH-STATIC	Converge the center vertical line in the green vertical line.
5	Repeat steps 1 through 4 to obtain the oputimum center vertical line.		
6	Lean adjustment	RH-SUB KEY	Adjust so that the vertical lines in the B and C blocks of the screen.
7		RH-KEY	
8	Repeat steps 6 and 7 to obtain vertical lines that are most perfectly vertical in the B and C blocks of the screen.		
9	Distortion adjustment	RH-M S PIN	Adjust so that the vertical lines in the right and left sections of the screen are not distorted and are straight.
10		RH-SUB PIN	
11		RH-4 S PIN	
12		RH-MID PIN	
13		RH-PIN	
14		RH-4TH PIN	
15	Repeat steps 9 throught 14 to obtain straight vertical lines in the right and left sections of the screen.		
16	Repeat steps 6 throught 15 to obtain the optimum vertical lines in the right and left sections of the screen.		
17	Line intervals adjustment	RH-4TH LIN	Adjust the intervals of the vertical lines in the right and left sections of the screen and converge them in the green vertical lines.
18		RH-LIN	
19		RH-SIZE	
20		RH-SUB LIN	
21	Repeat steps 17 through 20 to obtain the optimum vertical lines in the right and left sections of the screen.		
22	Fine-adjust over the entire picture to obtain the optimum picture.		

● Red Adjustment In the Vertical Direction

Step No.	Adjustment item		Adjustment Procedure
1	Center line adjustment	RV-SKEW	Adjust so that the center horizontal line of the screen is not leaned.
2		RV-BOW	Adjust so that the center horizontal line of the screen is not distorted and is straight.
3		RV-STATIC	Converge the center horizontal line in the green horizontal line.
4	Repeat steps1 through 3 to obtain the optimum center horizontal line.		
5	Lean adjustment	RV-MID KEY	Adjust so that the horizontal lines in the D and E blocks of the screen are not leaned.
6		RV-SUB KEY	
7		RV-KEY	
8	Repeat steps 5 and 7 to obtain the horizontal lines that are most perfectly horizontal in the D and E blocks of the screen.		
9	Distortion adjustment	RV-SUB PIN	Adjust so that the horizontal lines in the upper and lower sections of the screen are not distorted and are straight.
10		RV-MID PIN	
11		RV-PIN	
12		RV-S C PIN	
13		RV-4TH PIN	
14	Repeat steps 9 throught 13 to obtain straight horizontal lines in the upper and lower sections of the screen.		
15	Repeat steps 5 throught 14 to obtain the optimum horizontal lines in the upper and lower sections of the screen.		
16	Line intervals adjustment	RV-LIN	Adjust the intervals of the horizontal lines in the D and E blocks of the screen and converge them in the green horizontal lines.
17		RV-SIZE	
18		RV-SUB LIN	
19	Repeat steps 16 through 18 to obtain the optimum horizontal lines in the upper and lower sections of the screen.		
20	Fine-adjust over the entire picture to obtain the optimum picture.		

9.4.4 Blue line Adjustment

- Adjust the blue line convergence using a green line and blue line.
- Adjust it by overlaying a blue line on a green line using the VOL (⊞ , ⊟) keys on the remote control unit so that the line becomes cyan.
- For information on blocks which are referred to in some operation columns,see Fig.9-9 and 9-13.
- Adjust in ADJ. CONVERGE NORMAL mode, then in ADJ. CONVERGE WIDE mode.
- After making the adjustments for all items,perform fine adjustment referring to the whole screen.

● Blue Adjustment In the Horizontal Direction

Step No.	Adjustment item		Adjustment Procedure
1	Center line adjustment	BH-SKEW	Ajust so that the center vertical line of the screen is not leaned.
2		BH-BOW	Adjust so that the center vertical line of screen is not distorted and is straight.
3		BH-4TH BOW	
4		BH-STATIC	Converge the center vertical line in the green vertical line.
5	Repeat steps 1 through 4 to obtain the oputimum center vertical line.		
6	Lean adjustment	BH-SUB KEY	Adjust so that the vertical lines in the B and C blocks of the screen are not leaned.
7		BH-KEY	
8	Repeat steps 6 and 7 to obtain vertical lines that are most perfectly vertical in the B and C blocks of the screen.		
9	Distortion adjustment	BH-M S PIN	Adjust so that the vertical lines in the right and left sections of the screen are not distorted and are straight.
10		BH-SUB PIN	
11		BH-4 S PIN	
12		BH-MID PIN	
13		BH-PIN	
14		BH-4TH PIN	
15	Repeat steps 9 throught 14 to obtain straight vertical lines in the right and left sections of the screen.		
16	Repeat steps 6 throught 15 to obtain the optimum vertical lines in the right and left sections of the screen.		
17	Line intervals adjustment	BH-4TH LIN	Adjust the intervals of the vertical lines in the right and left sections of the screen and converge them in the green vertical lines.
18		BH-LIN	
19		BH-SIZE	
20		BH-SUB LIN	
21	Repeat steps 17 through 20 to obtain the optimum vertical lines in the right and left sections of the screen.		
22	Fine-adjust over the entire picture to obtain the optimum picture.		

● Blue Adjustment In the Vertical Direction

Step No.	Adjustment item		Adjustment Procedure
1	Center line adjustment	BV-SKEW	Adjust so that the center horizontal line of the screen is not leaned.
2		BV-BOW	Adjust so that the center horizontal line of the screen is not distorted and is straight.
3		BV-STATIC	Converge the center horizontal line in the green horizontal line.
4	Repeat steps1 through 3 to obtain the optimum center horizontal line.		
5	Lean adjustment	BV-MID KEY	Adjust so that the horizontal lines in the D and E blocks of the screen are not leaned.
6		BV-SUB KEY	
7		BV-KEY	
8	Repeat steps 5 and 7 to obtain the horizontal lines that are most perfectly horizontal in the D and E blocks of the screen.		
9	Distortion adjustment	BV-SUB PIN	Adjust so that the horizontal lines in the upper and lower sections of the screen are not distorted and are straight.
10		BV-MID PIN	
11		BV-PIN	
12		BV-S C PIN	
13		BV-4TH PIN	
14	Repeat steps 9 throught 13 to obtain straight horizontal lines in the upper and lower sections of the screen.		
15	Repeat steps 5 throught 14 to obtain the optimum horizontal lines in the upper and lower sections of the screen.		
16	Line intervals adjustment	BV-LIN	Adjust the intervals of the horizontal lines in the D and E blocks of the screen and converge them in the green horizontal lines.
17		BV-SIZE	
18		BV-SUB LIN	
19	Repeat steps 16 through 18 to obtain the optimum horizontal lines in the upper and lower sections of the screen.		
20	Fine-adjust over the entire picture to obtain the optimum picture.		

9.4.5 Picture Movements in Horizontal Adjustments

The adjustments in the horizontal direction are performed by applying the convergence correction signals to the horizontal deflection and changing the amount of the correction. With these adjustments, the vertical lines will move.
This section describes the picture movements and the adjusting points when adjusting each item using a cross hatch signal input.
See Fig. 9 - 9 for reference, in which each of the sections to the right and left to the center vertical line of the screen are divided into three blocks to describe the picture movements.

- Center–line adjustment in the Horizontal Direction

See Table 9 - 1 for the picture movements and general information on this adjustment.
This adjustment consists of H - SKEW, H - BOW, H - 4TH BOW and H - STATIC to correct the overall picture.
Adjust the center vertical line so that it is not distorted and is straight and perfectly vertical.
The center vertical line does not move when adjusting the other items. Use the center vertical line set through this adjustment as reference for the other adjustments. After adjusting the center line, adjust the screen sections to the right and left of the center line.

Note that there may be some deviation in the overall picture if this adjustment is performed alone. Finely adjust the picture with subsequent adjustments.

> Caution
> Be sure to adjust H - STATIC by changing the data value within the range (010 to - 010) of the telop indication in CONVER ADJ mode of FACTORY ADJ mode. If this range is exceeded, the convergence assembly may be damaged. If the adjustment is not possible within the range of 010 to - 010, set the data value to 0, turn the centering magnet of the deflection yoke and fine - adjust H - STATIC.

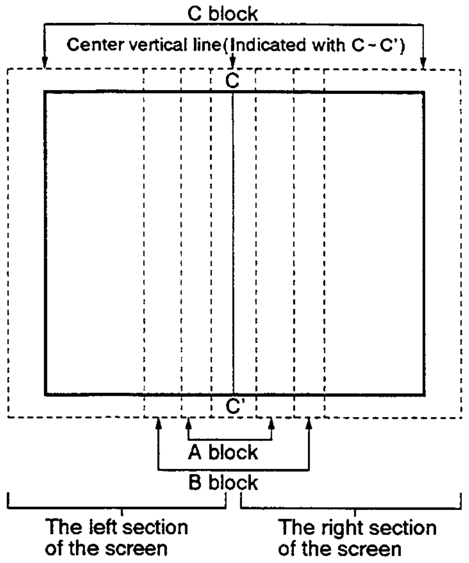
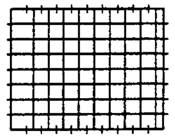
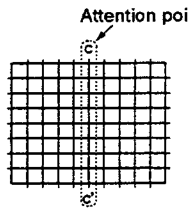
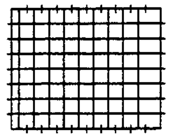
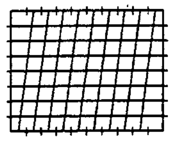
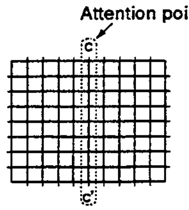
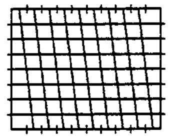
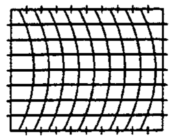
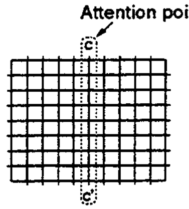
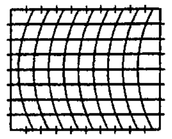
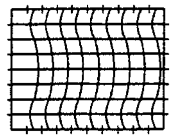
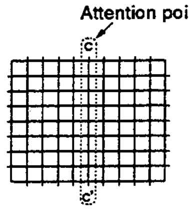
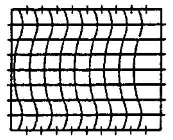

C block
Center vertical line(Indicated with C - C')
C
C'
A block
B block
The left section of the screen
The right section of the screen

Fig. 9 - 9 Screen Divisions for Horizontal Adjustment

Table 9 - 1 Center - line Adjustment in the Horizontal Direction

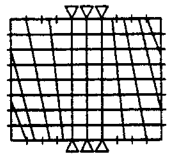
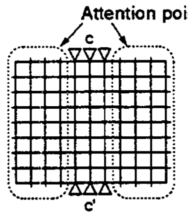
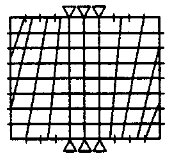
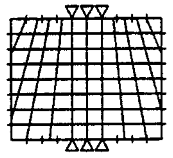
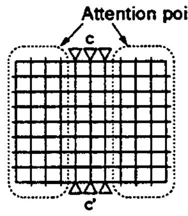
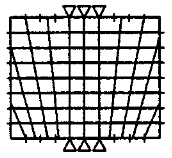
Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
H-STATIC *1				Center vertical line	Move the vertical line at the attention point on the screen shown in the figure to the left to converge it in the green line which has been set for reference. This provides the reference position of the center vertical line for the convergence adjustment.		The overall picture moves in parallel in the same manner as with the user-convergence adjustment.
H-SKEW				Center vertical line	Eliminate the lean at the attention point on the screen shown in the figure to the left.	Adjust H - SKEW, H - BOW, H - 4TH BOW repeatedly until the center vertical line is straight and is perfectly vertical. Adjust H - SKEW and H - 4TH BOW so that the A blocks are in the optimal condition. (The lean and waving distortion in the A blocks cannot be eliminated with the other adjustments.)	The lean of the overall picture is corrected. As shown in the figure to the left, the overall picture is leaned.
H-BOW				Center vertical line	Adjust so that the bowed line at the attention point on the screen shown in the figure to the left is straight.		The bowed lines over the overall screen are corrected. All the vertical lines are bowed as shown in the figure to the left.
H-4TH BOW				Center vertical line	Adjust so that the wavy line in the attention-point on the screen shown in the figure to the left is straight.		The waving (fourth-order) distortion over the overall screen is corrected. As shown in the figure to the left, the whole picture is distorted in waves.

*1 : H - STATIC can be shifted for convenience while adjusting the other items. Be sure to adjust the other items in consideration of the shift in H - STATIC and then readjust H - STATIC. (Be sure to shift it within the telop indication range of 010 to - 010.)

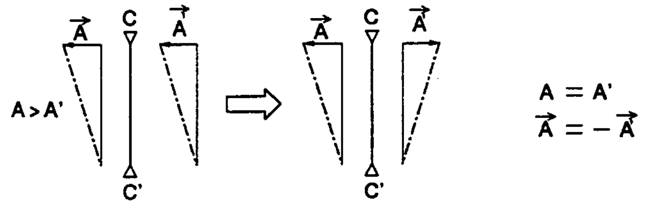
- Lean Adjustment in the Horizontal Direction

See Table 9-2 for the picture movements and general information on this adjustment.
The right and left sections of the screen are corrected with H-SUB KEY and H-KEY. Adjust the lean in the B and C blocks on the screen to eliminate.

Table 9-2 Lean adjustment in the Horizontal direction

Item	Deviating Picture	Corrected Picture Screen	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
H-SUB KEY				B and C blocks	Adjust to eliminate any lean at the attention-point blocks on the screen shown in the figure to the left. If the lean cannot be eliminated, set the screen to the status in which H-KEY has deviation as shown in Fig. 9-10, and adjust H-KEY.	Alternately adjust H-SUB KEY and H-KEY so that the lean in the B and C blocks is eliminated.	The lean in the B and C blocks on the screen is corrected. The right and left sections of the screen move in the same direction.
H-KEY				B and C blocks	Adjust to eliminate the lean in the attention-point blocks on the screen shown in the figure to the left.		The lean in the the B and C blocks on the screen is corrected. The right and left sections move symmetrically in relation to the center line.

Note:
▷———◁ : Line which does not move.



Note:
C ▷———◁ C' : Center vertical line
——— : Reference line
-·-·-·- : Leaned line

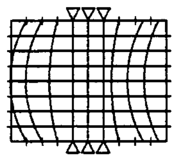
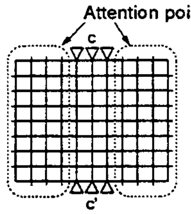
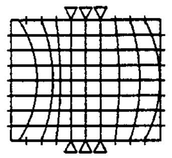
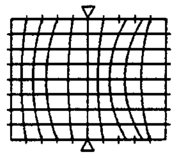
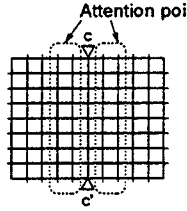
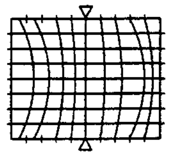
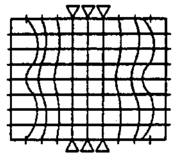
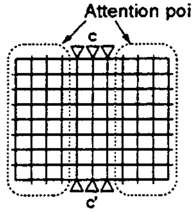
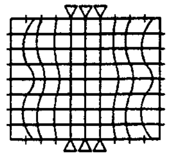
$\vec{A}$: Vector of the deviation in the left section of the screen
$\vec{A}'$: Vector of the deviation in the right section of the screen
A : Scalar quantity of the deviation in the left section of the screen
A' : Scalar quantity of the deviation in the right section of the screen

Fig. 9-10 Example of H-SUB KEY

- Distortion Adjustment in the Horizontal Direction (1)

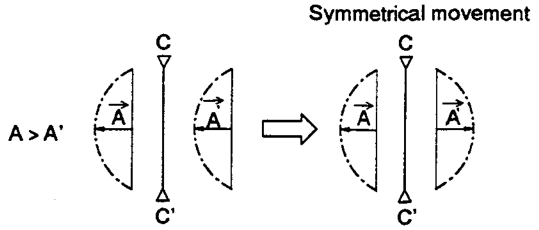
See Table 9-3 for the picture movements and general information on this adjustment.
In this adjustment, the distortion on the screen is corrected with H-M S PIN, H-SUB PIN and H-4 S PIN while moving the right and left sections in the same direction.
Adjust them so that the distortion in the right and left sections is eliminated and the vertical lines in both sections are straight. If straight lines cannot be obtained, first set the picture to the status in which it is symmetrically distorted and then adjust H-MID PIN, H-PIN and H-4TH PIN.

Table 9-3 Distortion Adjustment in the Horizontal Direction (1)

Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
H-SUB PIN *1	 ⇔	 ⇔		B and C blocks (Especially C block)	Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.	First adjust the A block with H-M S PIN and set the B block to a roughly-adjusted state. Then adjust the B and C blocks with H-SUB PIN. If the B and C blocks are distorted in waves, adjust H-4 S PIN. Repeat these adjustments until the vertical lines in both the left and right sections of the screen are straight. If straight lines cannot be obtained, move the right and left sections symmetrically as shown in Fig. 9-11 in the opposite directions to the same extent and adjust H-MID PIN, H-PIN and H-4TH PIN.	The bowed lines are corrected centering the C block on the screen. As shown in the figure to the left, the lines in the C block move more than those in the B block. The lines in the right and left sections move in the same direction.
H-M S PIN *1	 ⇔	 ⇔		A and B blocks (Especially B block)	Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.		The bowed lines are corrected centering the B block on the screen. As shown in the figure to the left, the B block move more than the C block. The right and left sections move in the same direction.
H-4 S PIN	 ⇔	 ⇔		B and C blocks	Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.		The wavy lines (fourth-order) are corrected in the B and C blocks on the screen. The right and left sections move in the same direction.

*1 : H-SUB PIN and H-M S PIN work relative to each other. Be sure to adjust them alternately.

Note:
▷——◁ : Line which does not move.



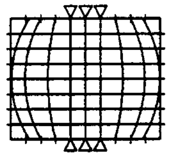
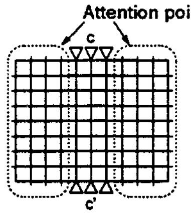
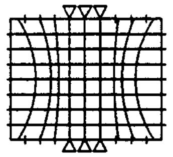
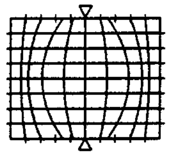
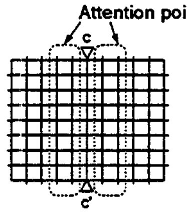
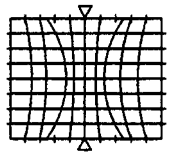
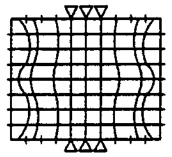
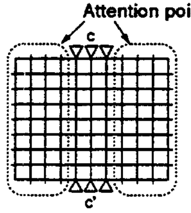
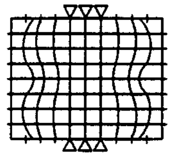
Note:
C▷——◁C' : Center vertical line
—— : Reference line
-·-·-·- : Distorted line
$\vec{A}$: Vector of the deviation in the left section of the screen
$\vec{A'}$: Vector of the deviation in the right section of the screen
A : Scalar quantity of the deviation in the left section of the screen
A' : Scalar quantity of the deviation in the right section of the screen

Fig. 9-11 Example of Distortion Adjustment in the Horizontal Direction (1)

- Distortion Adjustment in the Horizontal Direction (2)

See Table 9-4 for the picture movements and general information on this adjustment.
In this adjustment, the distortion on the screen is corrected with H-MID PIN, H-PIN and H-4TH PIN while moving the right and left sections of the screen symmetrically in relation to the center line. Adjust so that the distortion in the right and left sections is eliminated and the vertical lines in both sections are straight.

Table 9-4 Distortion Adjustment in the Horizontal Direction (2)

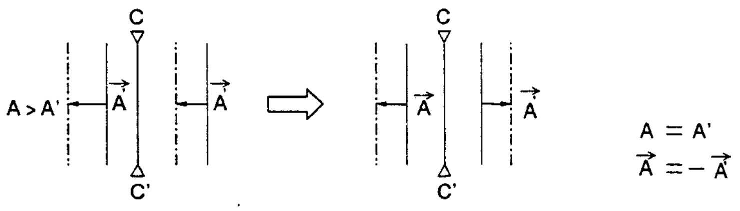
Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
H-PIN *1		⇔  ⇔		B and C blocks (Especially C block)	Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.	First adjust the A blocks with H-MID PIN and set the B blocks to a roughly-adjusted state. Then adjust the B and C blocks with H-PIN. If there is waving distortion, adjust H-4TH PIN. Repeat these adjustments until the vertical lines in both the left and right sections of the screen are straight.	The bowed lines are corrected centering the C block on the screen. As shown in the figure to the left, the C block move more than the B block. And the right and left sections move symmetrically in relation to the center line.
H-MID PIN *1		⇔  ⇔		A and B blocks (Especially B block)	Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.		The bowed lines are corrected centering the B block on the screen. As shown in the figure to the left, the B block move more than the C block. And the right and left sections move symmetrically in relation to the center line.
H-4TH PIN		⇔  ⇔		B and C blocks	Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.		The wavy lines (fourth-order) are corrected in the B and C blocks on the screen. As shown in the figure to the left, and the right and left sections move symmetrically in relation to the center line.

*1 : H-PIN and H-MID PIN work relative to each other. Be sure to adjust them alternately.

Note:
▷————◁ : Line which does not move.

- Line-Interval Adjustment in the Horizontal Direction

See Table 9-5 for the picture movements and general information on this adjustment.
In this adjustment, the intervals of the vertical lines are corrected with H-4TH LIN, H-LIN, H-SIZE and H-SUB LIN. Converge the vertical lines in the right and left sections of the screen in the green vertical lines which have been set for reference.
The differences between H-LIN, H-4TH LIN, H-SIZE and H-SUB LIN are shown in Table 9-6.



Note:
C▷————◁C' : Center vertical line
———— : Reference line
-·-·-·-·- : Deviating line

$\vec{A}$: Vector of the deviation in the left section of the screen
$\vec{A}$: Vector of the deviation in the right section of the screen
A : Scalar quantity of the deviation in the left section of the screen
A' : Scalar quantity of the deviation in the right section of the screen

Fig. 9-12 Example of Line-Interval Adjustment in the Horizontal Direction

Table 9-6 Difference Between Adjustment Items

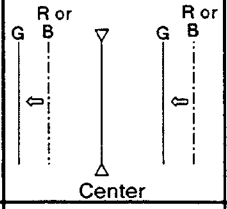
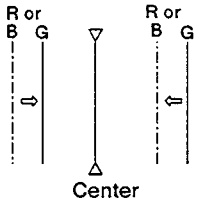
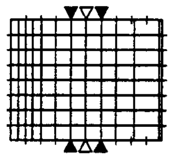
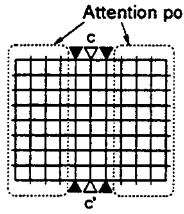
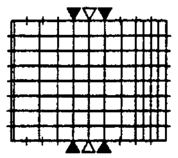
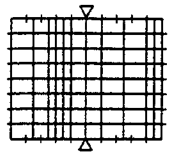
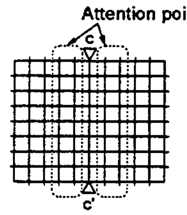
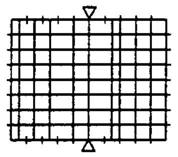
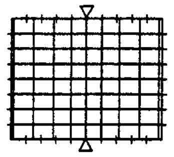
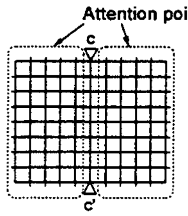
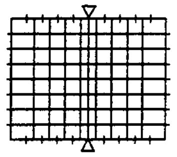
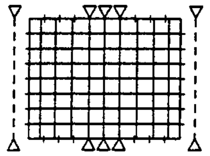
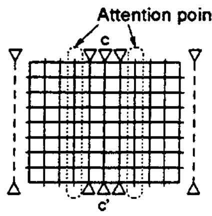
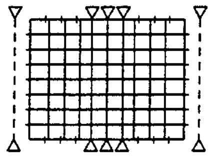
Item	Screen Example	Remarks
H-4TH LIN and H-LIN		H-4 TH LIN and H-LIN should be adjusted when the right and left sections of the screen show deviation in the same direction.
H-SIZE and H-SUB LIN		H-SIZE and H-SUB LIN should be adjusted when the right and left sections of the screen show deviation symmetrically in relation to the center line.

Table 9-5 Line-Interval Adjustment in the Horizontal Direction

Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
H-LIN *1	 ⇔	 ⇔		B and C blocks	Observe the movements with H-SIZE and H-SUB LIN and move the lines in the right and left sections in the opposite directions to the same extent. (See Fig. 9-12.)	First move the lines in the A blocks with H-4TH LIN and then those in the B and C blocks with H-LIN. Adjust them repeatedly until the optimum line intervals are obtained. *2	The line intervals are corrected centering the C block on the screen. As shown in the figure to the left, the lines in the right and left sections of the screen move centering the respective C block.
H-4 TH LIN *1	 ⇔	 ⇔		A and B blocks (Especially B block)	Observe the movements with H-SIZE and H-SUB LIN and move the lines in the right and left sections in the opposite directions to the same extent. (See Fig. 9-12.)		The line intervals are corrected centering the A and B blocks on the screen. As shown in the figure to the left, the lines in the right and left sections of the screen move centering the respective A and B block.
H-SIZE *2	 ⇔	 ⇔		A, B and C blocks	Converge the vertical lines in the green vertical lines which have been set for reference.	Adjust the vertical lines in the right and left sections of the screen with H-SIZE. If the lines cannot be converged in the B blocks, adjust H-SUB LIN.	The line intervals in the right and left sections (A, B and C blocks) of the screen are corrected. As shown in the figure to the left, the line intervals in the right and left sections of the screen change with the center line as the axis.
H-SUB LIN *2	 ⇔	 ⇔		B block	Converge the vertical lines in the attention-point blocks on the screen shown in the figure to the left in the green vertical lines which have been set for reference.		The line intervals in the B block on the screen are corrected. As shown in the figure to the left, the lines in the center of B block of the right and left sections move in the same manner as with H-SIZE.

*1: H-4TH LIN and H-LIN work relative to each other. Be sure to adjust them alternately.
*2: When convergence in the green lines is achieved with H-4TH LIN and H-LIN, further adjustments with H-SIZE and H-SUB LIN are not necessary.

Note:
▷————◁ : Line which does not move at all.
▶————◀ : Line which hardly moves.
▷- - - - - - - -◁ : Line which does not move out of the screen.

9.4.6 Picture Movements in Vertical Adjustments

The adjustments in the vertical direction are performed by applying the convergence correction signals to the vertical deviation to change the amount of correction. With these adjustments, the horizontal lines will move.
This section describes the picture movements and the adjusting points when adjusting each item using a cross hatch input.
See Fig. 9-13 for reference, in which each of the sections above and below the center horizontal line of the screen are divided into two blocks to describe the picture movements.

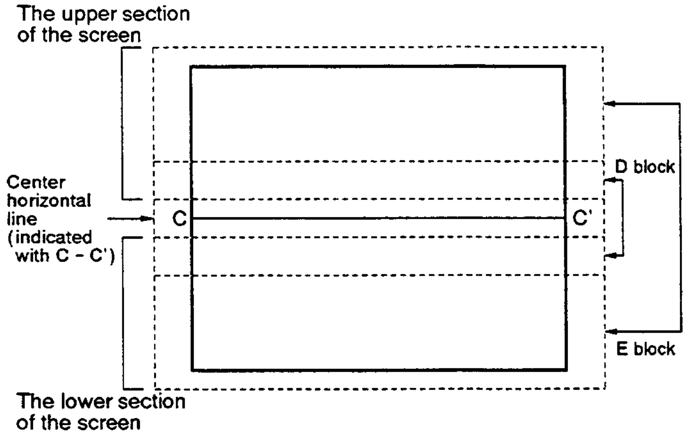

The upper section of the screen
Center horizontal line (indicated with C - C')
C
C'
D block
E block
The lower section of the screen

Fig. 9-13 Screen Divisions for Vertical Adjustments

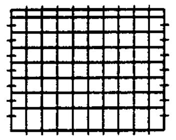
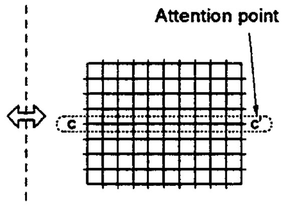
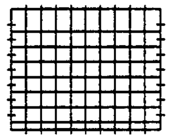
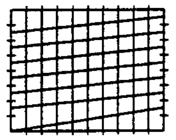
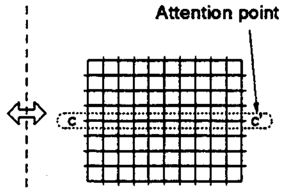
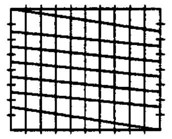
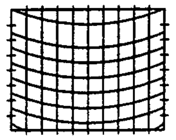
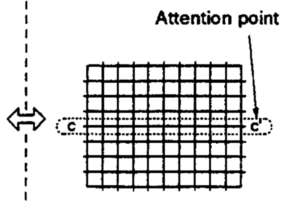
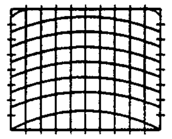
- Center-line Adjustment in the Vertical Direction

See Table 9-7 for the picture movements and general information on this adjustment.
This adjustment consists of V-SKEW, V-BOW and V-STATIC to correct the overall picture. Adjust the center horizontal line so that it is not distorted and is straight and perfectly horizontal. The center horizontal line does not move when adjusting the other items. Use the center horizontal line set through this adjustment as the reference for the other adjustments. After adjusting the center line, adjust the screen sections above and below the center line.
Note that there may be some deviation in the overall picture if this adjustment is performed alone. Finely adjust the picture with subsequent adjustments.

Caution

Be sure to adjust V-STATIC by changing the data value within the range (010 to -010) of the telop indication in CONVER ADJ mode of FACTORY ADJ mode.
If this range is exceeded, the convergence assembly may be damaged. If the adjustment is not possible within the range of 010 to -010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust V-STATIC.

Table 9-7 Center-line Adjustment in the Vertical Direction

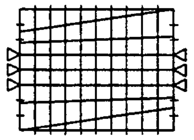
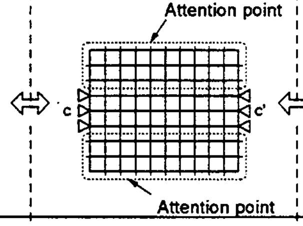
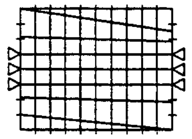
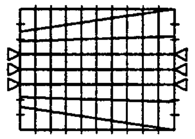
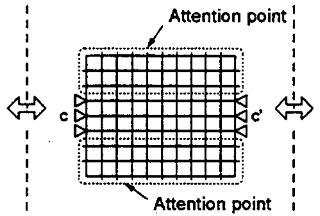
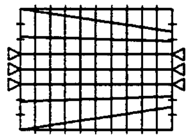
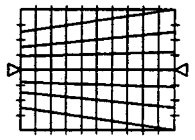
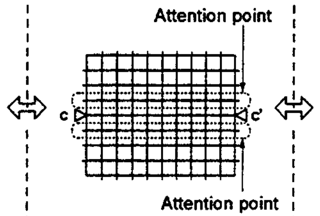
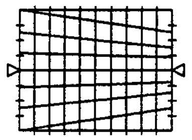
Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
V-STATIC *1				Center horizontal line	Move the horizontal line at the attention point on the screen shown in the figure to the left to converge it in the green line which has been set for the reference. This provides the reference position of the center horizontal line for the convergence adjustment.		The overall picture moves in parallel in the same manner as with the user-convergence adjustment.
V-SKEW				Center horizontal line	Eliminate the lean at the attention point on the screen shown in the figure to the left.	Adjust V-SKEW and V-BOW repeatedly until the center horizontal line is straight and is perfectly horizontal. Be sure to set to the range in which the D blocks can be adjusted with V-MID KEY. (For the D blocks, the distortion cannot be independently adjusted and the lean is eliminated only with V-MID KEY.)	The lean of the overall picture is corrected. As shown in the figure to the left, the overall picture is leaned.
V-BOW				Center horizontal line	Adjust so that the bowed line at the attention point on the screen shown in the figure to the left is straight.		The bowed lines over the screen are corrected. All the horizontal lines are bowed as shown in the figure to the left.

*1:V-STATIC can be shifted for convenience while adjusting the other items. Be sure to adjust the other items in consideration of the shift in V-STATIC and then readjust V-STATIC. (Be sure to shift it within the telop indication range of 010 to -010.)

- Lean Adjustment in the Vertical Direction

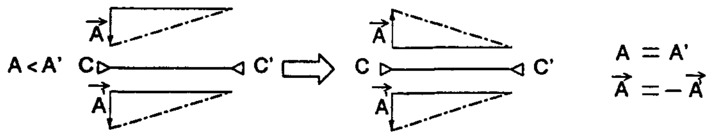
See Table 9-8 for the picture movements and general information on this adjustment.
In this adjustment, lean of the picture is corrected. Adjust V-SUB KEY, V-MID KEY and V-KEY to eliminating any lean in the upper and lower sections of the screen.

Table 9-8 Lean Adjustment in the Vertical Direction

Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
V-SUB KEY				E block	Adjust to eliminate the lean in the attention-point blocks on the screen shown in the figure to the left. If the lean cannot be eliminated, set the screen to the status in which V-KEY has deviation as shown in Fig. 9-14, and adjust V-KEY.	First adjust V-MID KEY so that the lean in the D block is eliminated. Then adjust V-SUB KEY and V-KEY so that the lean in the E block is eliminated. Repeat these adjustments until any lean in the upper and lower sections of the screen is eliminated.	The lean in the E block of the screen is corrected. The lines in the upper and lower sections of the screen move in the same direction.
V-KEY *1				E block	Adjust to eliminate the lean in the attention-point blocks on the screen shown in the figure to the left.		The lean in the E block of the screen is corrected. The upper and lower sections move symmetrically in relation to the center line.
V-MID KEY *1				D block	Adjust to eliminate any lean at the attention-point blocks on the screen shown in the figure to the left.		The lean in the upper and lower sections (D and E blocks) of the screen is corrected. The upper and lower sections move symmetrically in relation to the center line.

*1: V-MID KEY and V-KEY work relative to each other. Be sure to adjust them alternately.

Note:
▷——◁ : Line which does not move.



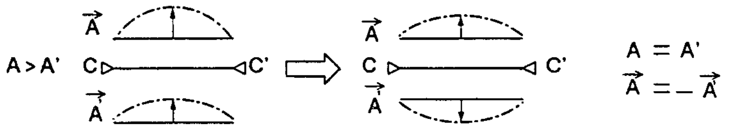
Note:

▷——◁ : Center horizontal line	$\vec{A}$: Vector of the deviation in the upper section of the screen
——— : Reference line	$\vec{A}$: Vector of the deviation in the lower section of the screen
-·-·-·- : Leaned line	A : Scalar quantity of the deviation in the upper section of the screen
	A' : Scalar quantity of the deviation in the lower section of the screen

Fig. 9-14 Example of Vertical Lean Adjustment

- Distortion Adjustment in the Vertical Direction

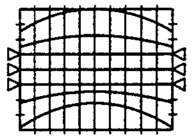
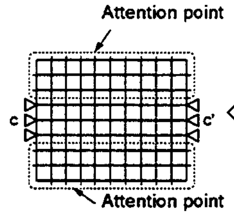
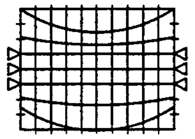
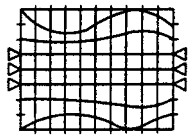
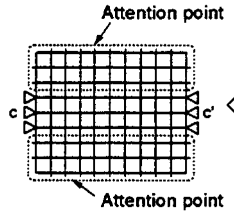
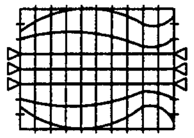
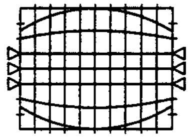
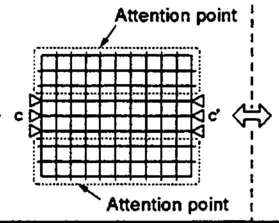
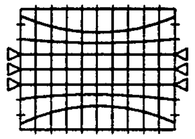
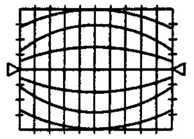
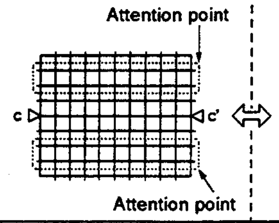
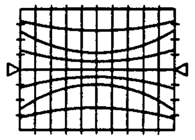
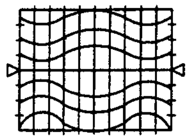
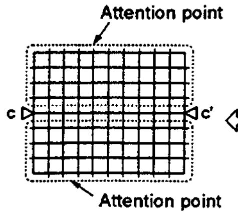
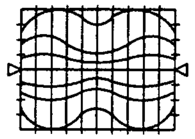
See Table 9-9 for the picture movements and general information on this adjustment.
In this adjustment, distortion on the screen is corrected. While adjusting V-SUB PIN, the upper and lower sections of the screen move in the same direction. While adjusting V-MID PIN, V-PIN, V-S C PIN and V-4TH PIN, the upper and lower sections move symmetrically in relation to the center line. Adjust them so that the distortion in the upper and lower sections of the screen is eliminated and the horizontal lines in both sections are straight.



Note:
C▷———◁C' : Center horizontal line
——— : Reference line
-·-·-·-·- : Distorted line
$\vec{A}$: Vector of the deviation in the upper section of the screen
$\vec{A}$: Vector of the deviation in the lower section of the screen
A : Scalar quantity of the deviation in the upper section of the screen
A' : Scalar quantity of the deviation in the lower section of the screen

Fig. 9-15 Example of V-SUB PIN Adjustment

Table 9-9 Distortion Adjustment in the Vertical Direction

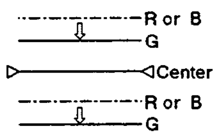
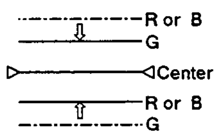
Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
V-SUB PIN				E block	Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight. If straight lines cannot be obtained, move the upper and lower sections as shown in Fig. 9-15 in the opposite directions to the same extent from the center horizontal line. Adjust with V-PIN so that the lines are straight.		The bowed lines are corrected in the E block of the screen. As shown in the figure to the left, the upper and lower sections move in the opposite directions.
V-S C PIN				E block	Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.	First adjust D block with V-MID PIN while setting the center-line side of E blocks to a roughly-adjusted state. Then adjust E block with V-PIN. If there is waving distortion, adjust V-4TH PIN and V-S C PIN. Repeat these adjustments until all the horizontal lines in both upper and lower sections of the screen are straight.	The wavy lines (third-order) are corrected in the E block on the screen. As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line.
V-PIN				E block	Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.		The bowed lines are corrected in the E block on the screen. As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line.
V-MID PIN				D block and the center line side of E block. (Especially the center line side of the E block)	Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.		The bowed lines are corrected on the center line side of E block on the screen. As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line.
V-4TH PIN				D and E blocks	Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.		The wavy lines (fourth-order) are corrected in the upper and lower sections (D and E blocks) of the screen. As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line.

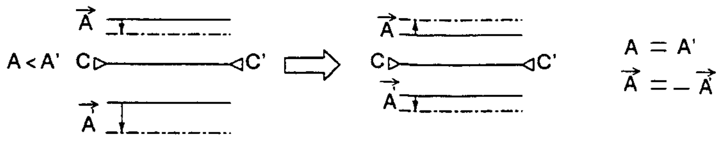
Note:
▷———◁ : Line which does not move at all.

- Line-Interval Adjustment in the Vertical Direction

See Table 9-10 for the picture movements and general information on this adjustment.
In this adjustment, the intervals of the horizontal lines in the upper and lower sections of the screen are corrected with V-LIN, V-SIZE and V-SUB LIN. Converge the horizontal lines in the upper and lower sections of the screen in the green horizontal lines which have been set for reference.
The differences between V-LIN, V-SIZE and V-SUB LIN are shown in Table 9-11.

Table 9-11 Difference Between Adjustment Items

Item	Screen Example	Remarks
V-LIN		V-LIN should be adjusted when the upper and lower sections of the screen show deviation in the same direction.
V-SIZE and V-SUB LIN		V-SIZE and V-SUB LIN should be adjusted when the upper and lower sections of the screen show the upper and lower sections move symmetrically in relation to the center line.

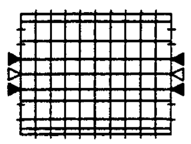
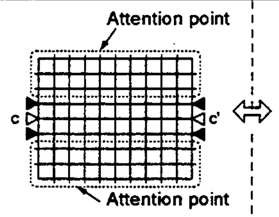
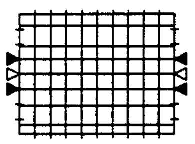
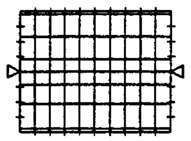
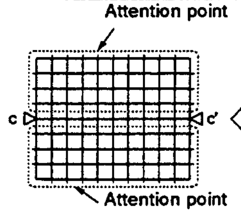
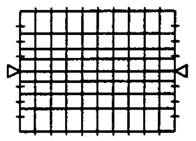
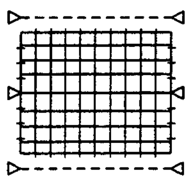
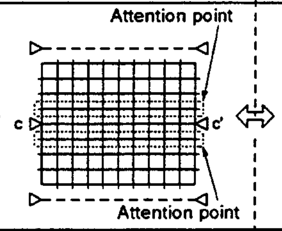
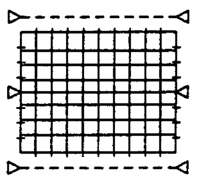


Note:
▷———◁ :Center horizontal line
——— :Reference line
-·-·-·-· :Deviating line

$\vec{A}$:Vector of the deviation in the upper section of the screen
$\vec{A}$:Vector of the deviation in the lower section of the screen
A :Scalar quantity of the deviation in the upper section of the screen
A' :Scalar quantity of the deviation in the lower section of the screen

Fig. 9-16 Example of V-LIN Adjustment

Table 9-10 Line-Interval Adjustment in the Vertical Direction

Item	Deviating Picture	Corrected Picture	Deviating Picture	Attention Point on the Screen During Adjustment	Adjustment Point		Remarks
V-LIN	 ⇔		⇔ 	E block	Observe the movements with V-SIZE and V-SUB LIN and move the lines in the upper and lower sections in the opposite directions to the same extent. (See Fig. 9-16.) When the convergence on the green lines is achieved, further adjustments with V-SIZE and V-SUB LIN are not necessary.		The line intervals are corrected centering the D and E blocks on the screen. As shown in the figure to the left, the lines in the upper and lower sections of the screen move centering the respective E block.
V-SIZE	 ⇔		⇔ 	D and E blocks	Converge the horizontal lines in the green horizontal lines which have been set for the reference.	Adjust the horizontal lines in the upper and lower sections of the screen with V-SIZE. If the lines in the D block cannot be converged, adjust V-SUB LIN.	The line intervals in the upper and lower sections (D and E blocks) of the screen are corrected. As shown in the figure to the left, the line intervals in the upper and lower sections of the screen change with the center line as the axis.
V-SUB LIN	 ⇔		⇔ 	D block	Converge the horizontal lines in the attention-point sections in the green horizontal lines which have been set for reference.		The line intervals in the D block on the screen are corrected. As shown in the figure to the left, the lines in the upper and lower sections move centering the respective D block in the same manner as with V-SIZE.

Note:
▷———◁ : Line which does not move at all.
▶———◀ : Line which hardly moves.
▷- - - - - - - - -◁ : Line which does not move out of screen.

9.5 TUNER SECTION

- No adjustment required when replacing the assembly.
- Perform the adjustment after the video and control section adjustments.
- Connection diagram is refered to Fig. 9-18.
- Adjustment points and test points are shown in Fig. 9-6.
- Perform the adjustment set to the TEST mode (Note 1).
- Perform the adjustment by using the channel 9 unless otherwise noted.
- Video and audio input signals are described in the below.

Note 1 ;

How to set the TEST mode.

- Short-circuit TP-TEST and GND in the TUNER-VIDEO assembly.
- Disconnect the AC power cord from the AC outlet, then connect it again.

How to release the TEST mode.

- Release the short-circuit TP-TEST and GND in the TUNER-VIDEO assembly.
- Disconnect the AC power cord from the AC outlet,then connect it again.

Ⓝ ; No signal
Video signal
V ① ; f_V = EIA color bar, 60 dB μ V
Audio signal (STEREO);
dbx noise reduction ON, PRE-EMPHASIS ON

S ① ; f_A = 300Hz,30% MOD,
Lch(or R ch) only, 54dB μ V
S ② ; f_A = 5KHz, 30% MOD
Lch(or R ch) only, 54dB μ V

Video system

Step No.	Adjustment Item	Input signal		Adjustment Point	Adjustment Procedure
		Video	Audio		
1	Video level adjustment	V①	Ⓝ	VR 4801 (T)	Adjust the output of the VIDEO REC terminal on the rear panel to 2Vp-p ± 0.15V (Not 75 Ω terminated.)

Audio system

Step No.	Adjustment Item	Input signal		Adjustment Point	Adjustment Procedure
		Video	Audio		
1	STEREO VCO	Ⓝ	Ⓝ	Remote control unit	● Press the numeric key [2] of the remote control unit for ST VCO adjustment mode. ● Measure the Rch output frequency of the OUTPUT REC terminal and adjust with the VOL ⊞ and ⊟ keys so that the frequency becomes closest to the 62.936kHz.
2	SAP VCO	Ⓝ	Ⓝ	Remote control unit	● Connect the Q4806 base to GND and input the 78.67 kHz ; 147 mVrms signal to TP-MPX(TP4902). ● Press the numeric key [3] of the remote control unit. ● Wait until "COMPLETE!" is displayed at part Ⓐ of the screen (see Fig. 9-17). ● If "TRY AGAIN!!" is displayed, adjust again using the following method. 1. Press the VOL ⊞ and ⊟ keys and adjust so that the value at part Ⓑ of the screen (see Fig. 9-17) becomes 21, 25, 29 or 2D. 2. Press the VOL ⊟ key slowly once at a time until the value at part Ⓑ of the screen changes from 21, 25, 29 or 2D to a different value. 3. Press the VOL ⊞ key slowly once at a time while counting it until the value at part Ⓑ of the screen changes from 21, 25, 29 or 2D to a different value. 4. Press the VOL ⊟ for half the number of times counted. 5. If the counted number is odd, subtract 1 from it and press the VOL ⊟ key for half of the resultant number.
3	STEREO LPF adjustment	Ⓝ	Ⓝ	Remote control unit	● Connect the Q4806 base to GND and input the 9.4 kHz ; 600 mVrms signal to TP-MPX(TP4902). ● Press the numeric key [4] of the remote control unit. ● Wait until "COMPLETE!" is displayed at part Ⓐ of the screen (see Fig. 9-17). ● If "TRY AGAIN!!" is displayed, adjust again using the following method. 1. Press the VOL ⊞ and ⊟ keys and adjust so that the value at part Ⓑ of the screen (see Fig. 9-17) becomes 3X. 2. Press the VOL ⊟ key slowly once at a time until the value at part Ⓑ of the screen changes from 3X to a different value. 3. Press the VOL ⊞ key slowly once at a time while counting it until the value at part Ⓑ of the screen changes from 3X to a different value. 4. Press the VOL ⊟ for half the number of times counted. 5. If the counted number is odd, subtract 1 from it and press the VOL ⊟ key for half of the resultant number.
4	SAP LPF adjustment	Ⓝ	Ⓝ	Remote control unit	● Connect the Q4806 base to GND and input the 88 kHz ; 120 mVrms signal to TP-MPX(TP4902). ● Press the numeric key [5] of the remote control unit. ● Wait until "COMPLETE!" is displayed at part Ⓐ of the screen (see Fig. 9-17). ● If "TRY AGAIN!!" is displayed, adjust again using the following method. 1. Press the VOL ⊞ and ⊟ keys and adjust so that the value at part Ⓑ of the screen (see Fig. 9-17) becomes X1, X3, X5 or X7. 2. Press the VOL ⊟ key slowly once at a time until the value at part Ⓑ of the screen changes from X1, X3, X5 or X7 to a different value. 3. Press the VOL ⊞ key slowly once at a time while counting it until the value at part Ⓑ of the screen changes from X1, X3, X5 or X7 to a different value. 4. Press the VOL ⊟ for half the number of times counted. 5. If the counted number is odd, subtract 1 from it and press the VOL ⊟ key for half of the resultant number.
5	* Separation adjustment (WIDEBAND)	V①	S①	Remote control unit	● Press the numeric key [7] of the remote control unit. ● Adjust the output of the OUTPUT REC terminal on the rear panel to minimum level. (Adjust the R ch level becomes mimimun at the Lch input and the Lch level becomes minimum at the Rch input.)
6					
7	Repeat step 5 and 6 to obtained best separation.				
8	* Separation adjustment (SPECTRAL)	V①	S②	Remote control unit	● Press the numeric key [6] of the remote control unit. ● Adjust the output of the OUTPUT REC terminal on the rear panel to minimum level. (Adjust the R ch level becomes mimimun at the Lch input and the Lch level becomes minimum at the Rch input.)
9					
10	Repeat step 8 and 9 to obtained best separation.				
11	Repeat step 5 , 6 , 8 and 9 to obtained best separation.				

* : When performing the separation adjustment, be sure to perform WIDE BAND adjustment first.

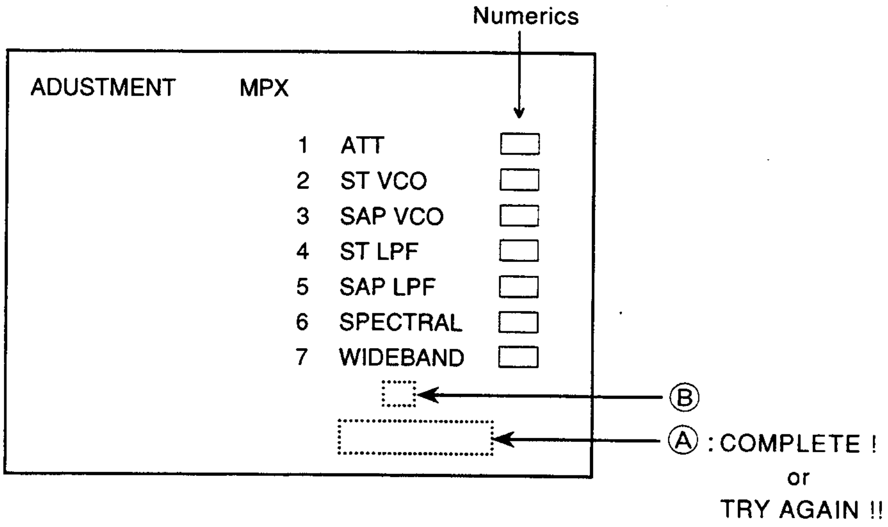
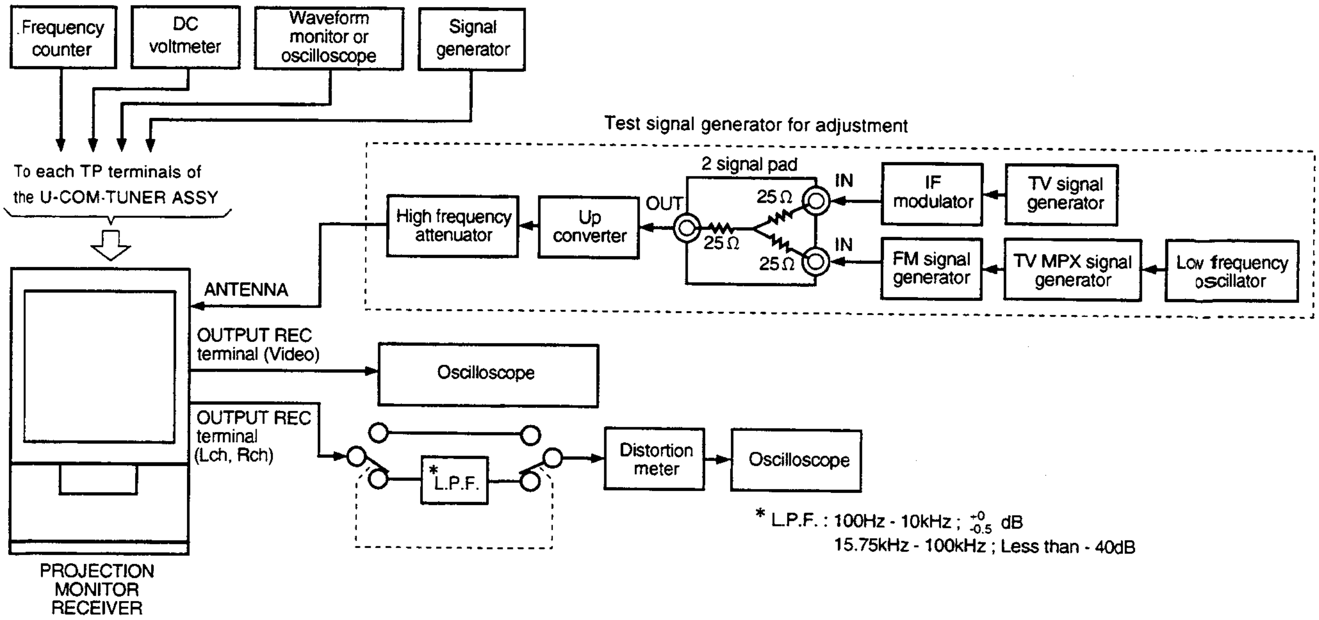

Numerics
ADUSTMENT
MPX
1 ATT
2 ST VCO
3 SAP VCO
4 ST LPF
5 SAP LPF
6 SPECTRAL
7 WIDEBAND
Ⓑ
Ⓐ : COMPLETE !
or
TRY AGAIN !!

Fig. 9-17 Display of ADJUSTMENT MPX mode screen


Frequency counter
DC voltmeter
Waveform monitor or oscilloscope
Signal generator
To each TP terminals of the U-COM-TUNER ASSY
Test signal generator for adjustment
2 signal pad
OUT
IN
IN
25Ω
25Ω
25Ω
High frequency attenuator
Up converter
IF modulator
TV signal generator
FM signal generator
TV MPX signal generator
Low frequency oscillator
ANTENNA
OUTPUT REC terminal (Video)
Oscilloscope
OUTPUT REC terminal (Lch, Rch)
*L.P.F.
Distortion meter
Oscilloscope
PROJECTION MONITOR RECEIVER

* L.P.F. : 100Hz - 10kHz ; $^{+0}_{-0.5}$ dB
15.75kHz - 100kHz ; Less than - 40dB

Fig. 9-18 Conection diagram when adjusting the tuner section

10. REPLACING THE CRT ASSY

Serviceman Warning
When replacing the CRT assy,turn off the power,unplug the AC plug and let the unit discharge for more than 1 minute.

The anode cables of the CRT assy R,G and B in PROJECTION MONITOR RECEIVER are connected in series as shown in Fig. 1.
When repracing the CRT assy,the anode cable have to be cut.

Note:
Since the anode cables for the CRT assy to service supplies are only available in half lengths,either cut longer lengths, or join older lengths of cable to ensure that the original cable length is used.

Table 1 Cable disconnecting methods

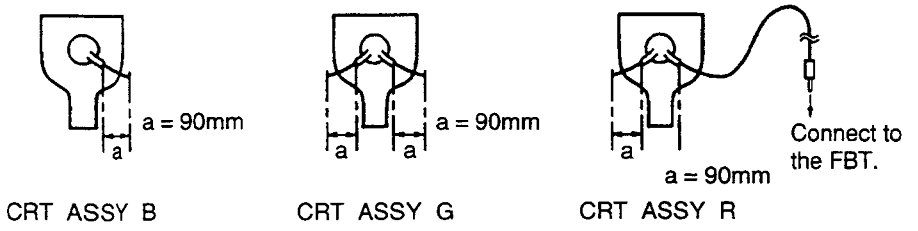
Cable	Replacement CRT assy		
	When CRT assy B is replaced	**When CRT assy G is replaced**	**When CRT assy R is replaced**
Cable ⓐ	—	—	Disconnect the anode cable from the FBT. (Refer to "7.3 ANODE VOLTAGE MEASURING METHOD")
Cable ⓑ	Leave it as is.	Cut a place 20mm from the exact center towards the CRT assy G.	Cut a place 20mm from the exact center towards the CRT assy R.
Cable ⓒ	Cut a place 20mm from the exact center towards the CRT assy B.	Cut a place 20mm from the exact center towards the CRT assy G.	Leave it as is.

Note: Do not cut other cables by mistake.

7.1 WHEN REPLACING THE CRT ASSY

Unplug the AC plug and let the unit discharge for more than 1 minute,then cut the anode cable according to Table 1.

Each CRT assy supplied as a spare part is as shown below.



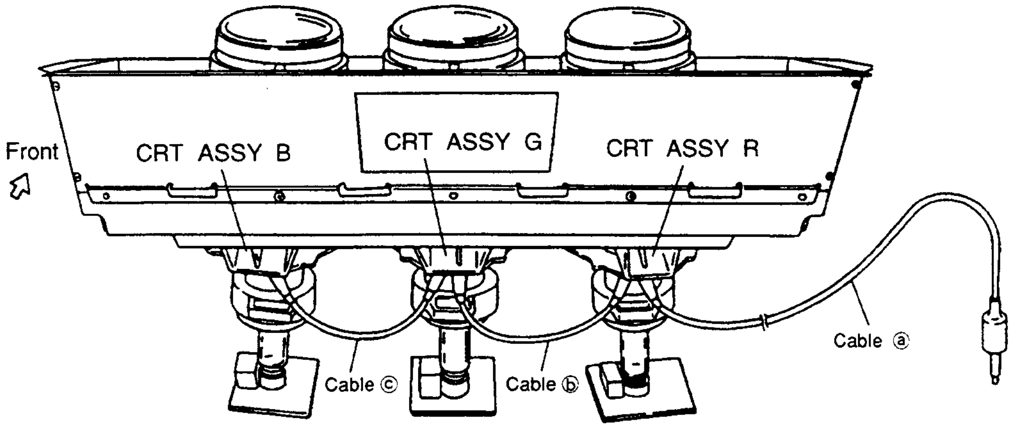
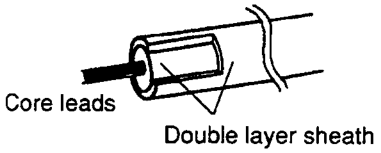
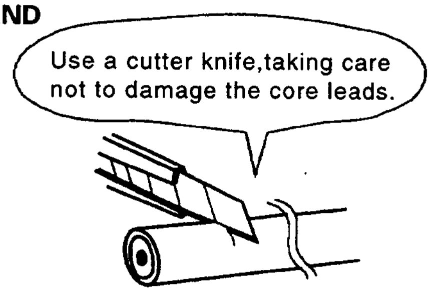
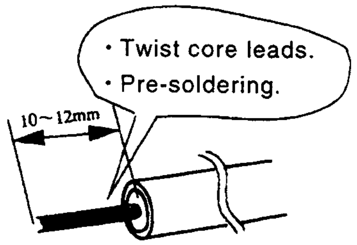


Fig. 1 Connection diagram of the CRT assemblies

■ANODE CABLE STRUCTURE AND SHEATH PEELING


Core leads
Double layer sheath


Use a cutter knife,taking care not to damage the core leads.

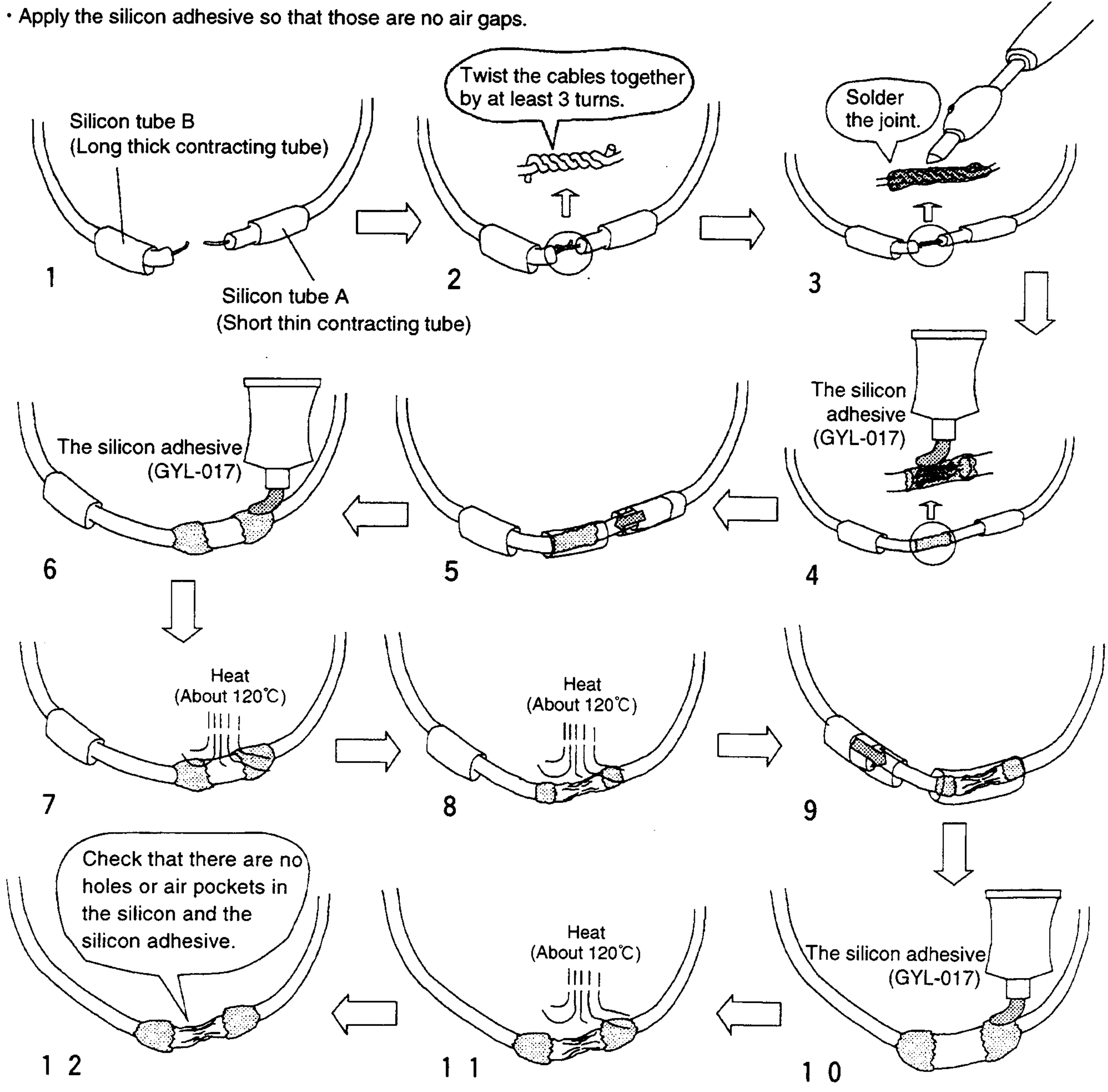

・Twist core leads.
・Pre-soldering.
10~12mm

■ANODE CABLE JOINING PROCEDURE

(The silicon tube is packed with CRT ASSY. For the silicon adhesive,be sure to use silicon adhesive part number GYL-017.)

●CAUTION When connecting the anode cable, pay attention to the following.

- Take care not damage the anode cable sheath.
- Insulate the cable core leads from other parts using the silicon adhesive and the silicon tube.
- Apply the silicon adhesive so that those are no air gaps.


1
Silicon tube B
(Long thick contracting tube)
Silicon tube A
(Short thin contracting tube)
2
Twist the cables together by at least 3 turns.
3
Solder the joint.
4
The silicon adhesive (GYL-017)
5
6
The silicon adhesive (GYL-017)
7
Heat (About 120℃)
8
Heat (About 120℃)
9
10
The silicon adhesive (GYL-017)
11
Heat (About 120℃)
12
Check that there are no holes or air pockets in the silicon and the silicon adhesive.

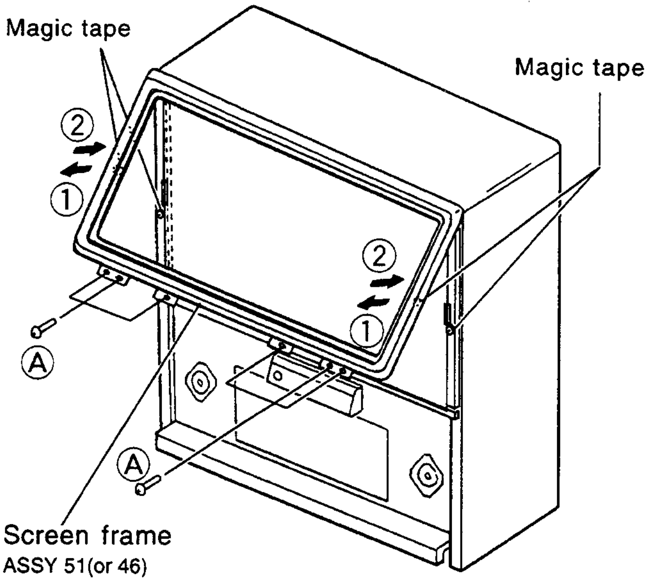
11. DISASSEMBLY

●REMOVAL OF SCREEN FRAME ASSY 51(or 46)

1. Remove the six stopper screws Ⓐ of the screen frame ASSY 51(or46)
2. Pull the magic tape of the screen frame ASSY 51(or 46) in arror directions ① to bring it away from the cabinet.
3. Remove the screen frame ASSY 51(or 46) upwards.

●MOUNTING OF SCREEN FRAME ASSY 51(or 46)

1. Hook the top part of the screen frame ASSY 51(or 46) and attach it.
2. Push the magic tape of the screen frame ASSY 51(or 46) in arrow directions ② to fix it to the cabinet.
3. Fix the six stopper screws Ⓐ of the screen frame ASSY 51(or46).

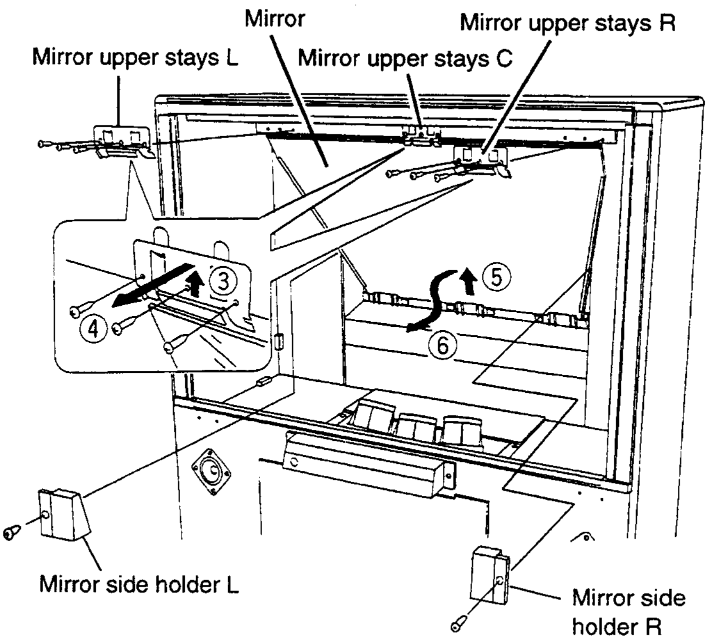


●PRECOUTION ON REMOVAL OF THE MIRROR CASE

The mirror is held by mirror upper stays L, R, and C in the cabinet assembly, and the mirror under stay attached to the mirror case.

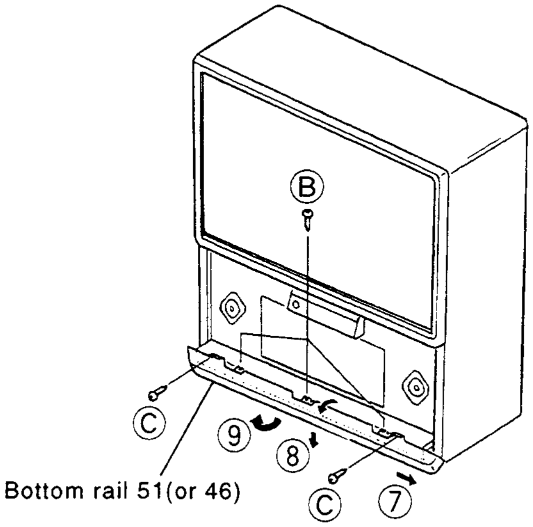
The mirror may be dropped and damaged when removing only the mirror case. When removing the mirror for servicing, proceed as follows.

1. Remove the screen.
2. Remove the mirror upper stays L and R at upper left and right of the mirror.
3. Remove the mirror side holder L and R.
4. Support the mirror by the hand and remove the mirror upper stay C at upper center of the mirror.
   To remove the mirror upper stays L, R and C, remove the stopper screws, push and lift them along the bar of the cabinet assembly (in the direction of arrow ③), and pull them out toward you (in the direction of arrow ④).
5. Lift and remove the bottom of the mirror (in the direc tion of arrow ⑤), and remove the mirror in the direc tion of arrow ⑥.



●REMOVAL OF BOTTOM RAIL 51(or 46)
(SD-P5185-K and 83 fanily only)

1. Remove the three stopper screws Ⓑ and two stopper screws Ⓒ of the bottom rail 51(or 46).
2. Slide the bottom rail 51(or 46) in arrow direction ⑦.
3. Remove the bottom rail 51(or 46) while rotating its top part in arrow direction ⑧ and bring it down.
4. Remove the bottom rail 51(or 46) while rotating its bottom part in arrow direction ⑨ and bring it towards you.



12. WIRING DIAGRAM

Reconnect any disconnected lead wires of the Projection monitor receiver.
The important points for connection of the lead wires are shown below.
You may find that they were connected differently. Be sure reconnect the lead wires as they were.

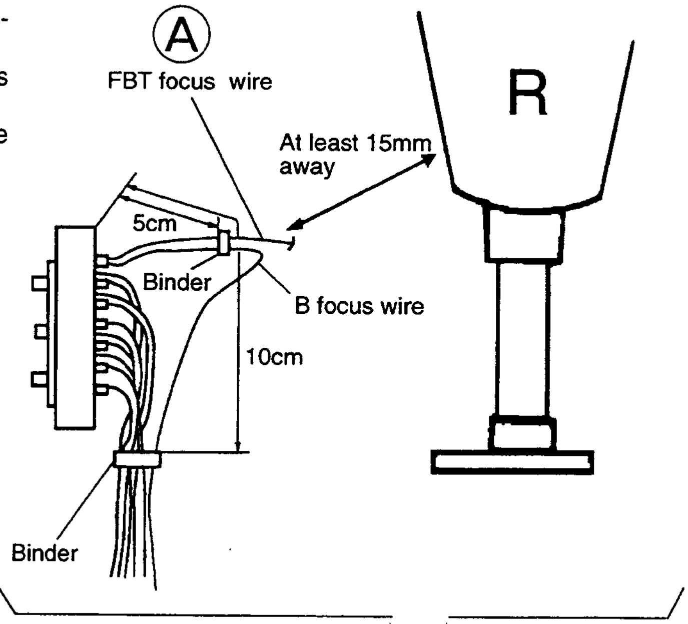
Note:

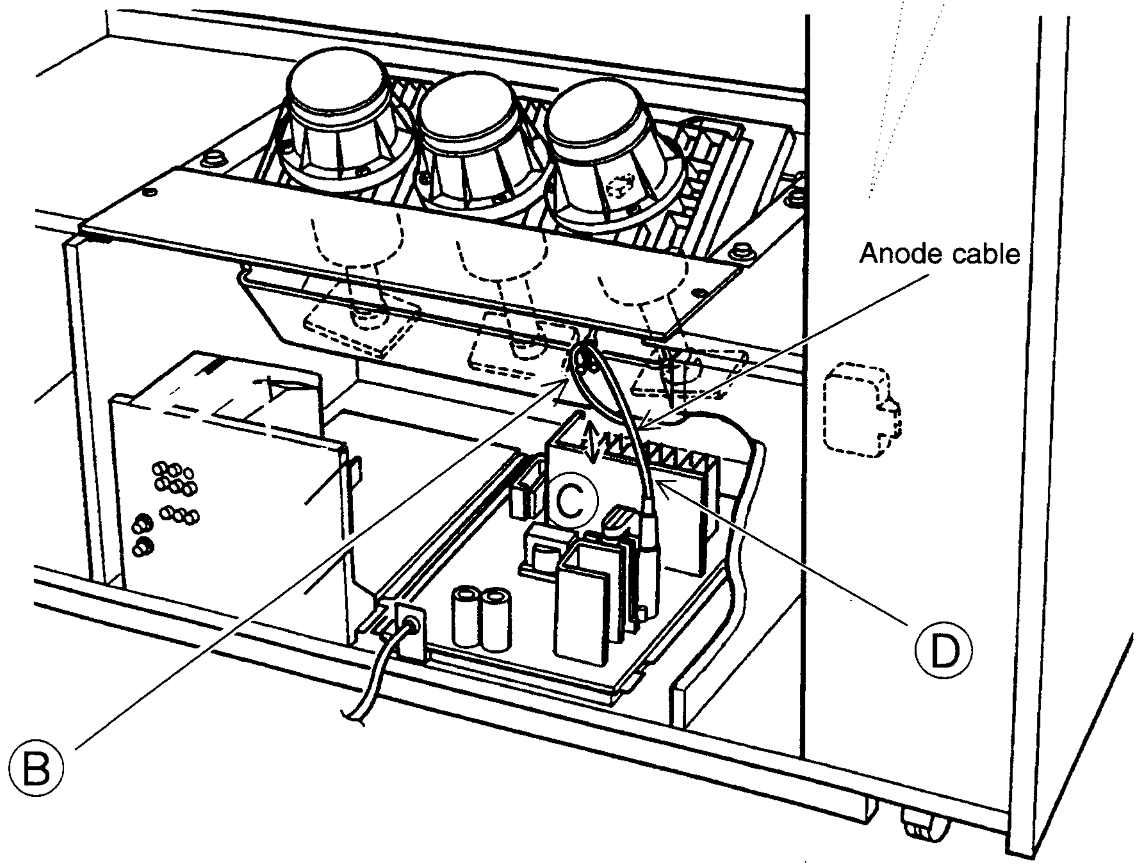
Ⓐ: FBT focus wire and other parts should be at least 15mm away from any other parts.

Ⓑ: Loop with a radius of 30mm or more.

Ⓒ: The anode cable and other parts should be at least 15mm away from any other parts.

Ⓓ: Loop with a radius of 50mm or more.


Ⓐ
FBT focus wire
At least 15mm away
R
5cm
Binder
B focus wire
10cm
Binder


Anode cable
C
D
Ⓑ

13. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ PD5300A (IC1731)

• CLOSED CAPTION SIGNAL DETECTOR AND CHARACTER DECODER

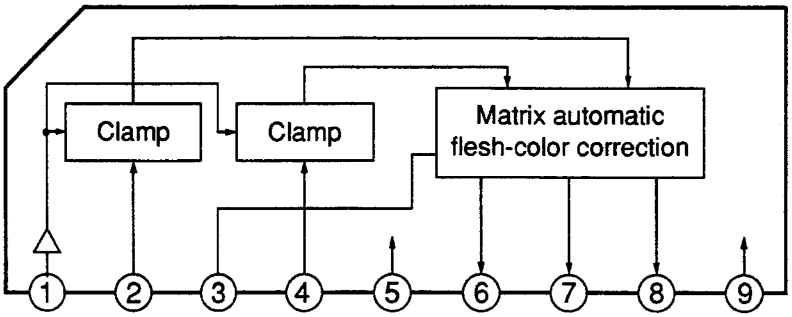
• Pin Function

Note) I : CMOS input O : CMOS output N : N ch open dolein output

No.	Name	I/O	Function	No.	Name	I/O	Function
1	HSYNC	I	Horizontal sync. signal input.	27	VCC	I	+5V power supply voltage
2	VSYNC	I	Vertical sync. signal input.	28	OSC2	O	Input/output pins of the clock generator circuit for OSD. Connect the 12MHz ceramic resonator.
3	R IN	I	R input	29	OSC1	I	
4	G IN	I	G input	30	RESET	I	Reset input. Input "L" for reset.
5	B IN	I	B input	31	NOT USED	I	+5V pull-up
6	BLK IN	I	Blanking input	32			
7	NOT USED	I	5V pull-up	33			
8				34			
9				35			
10				36			
11				37			
12				38			
13				39			
14				40			
15	CC ENB	I	Serial data enable input	41			
16	SIN	I	Serial data input	42			
17	SCLK	I	Serial clock input	43			
18	NOT USED	I	GND pull-down	44			
19	VHOLD	–	For data slicer (VHOLD-VSS 0.1 μF)	45			
20	VIN	I	For data slicer (VIN-VOUT 0.1 μF)	46			
21	VOUT	O		47			
22	CVIN	I	Video input for data slicer	48			
23	CNVSS	I	GND	49	BLK OUT	O	Blanking output
24	XIN	I	Input/output pins of the main clock genaration circuit. Connect the 8MHz ceramic resonator.	50	B OUT	O	B output
25	XOUT	O		51	G OUT	O	G output
26	VSS	I	GND	52	R OUT	O	R output

■ TA8647S (IC603)
VIDEO SIGNAL PROCESSOR

●Block Diagram



●Pin Fuction

No.	NAME	FUNCTION
1	FBP IN	Inputs fly-back pulse. DC-clamps input signals during this pulse period.
2	B – Y IN	Inputs B–Y signals
3	ON/OFF	Switch for automatic flesh-color correction. The automatic flesh-color correction is turned ON when a voltage to this pin is lower than 1.4V.
4	R – Y IN	Inputs R–Y signals
6	B –Y	Inputs B–Y signals
7	R – Y	Inputs R–Y signals
8	G – Y	Inputs G–Y signals

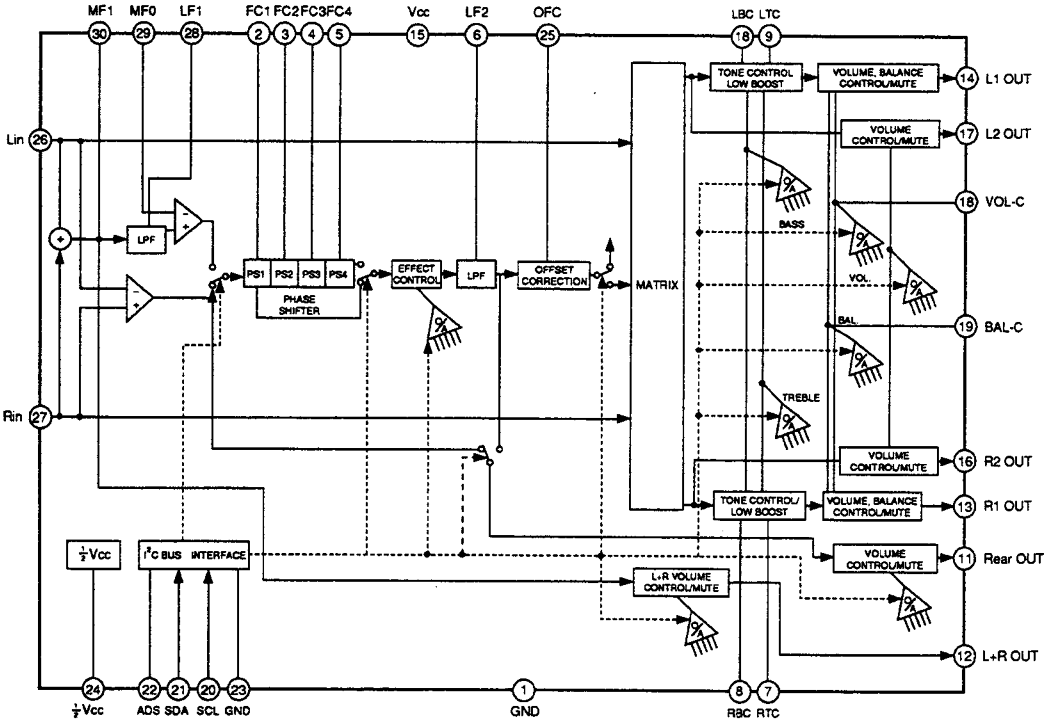
Maximum rating (Ta = 25°C)

Item	Symbol	Rating	Unit
Power supply voltage	Vcc	12	V
Input pin signal voltage	ein	5	V p-p
Dissipation power	PD [NOTE]	960	mW
Operating temperature	Topr	– 20 to 70	°C
Storage temperature	Tstg	– 55 to 150	°C

[NOTE] : Reduce 7.6 mW each time temperature increases by 1°C when this IC is used at more than 25°C.

■ μPC1853CT-01 (IC1402)
SOUND PROCESSOR

●Block Diagram

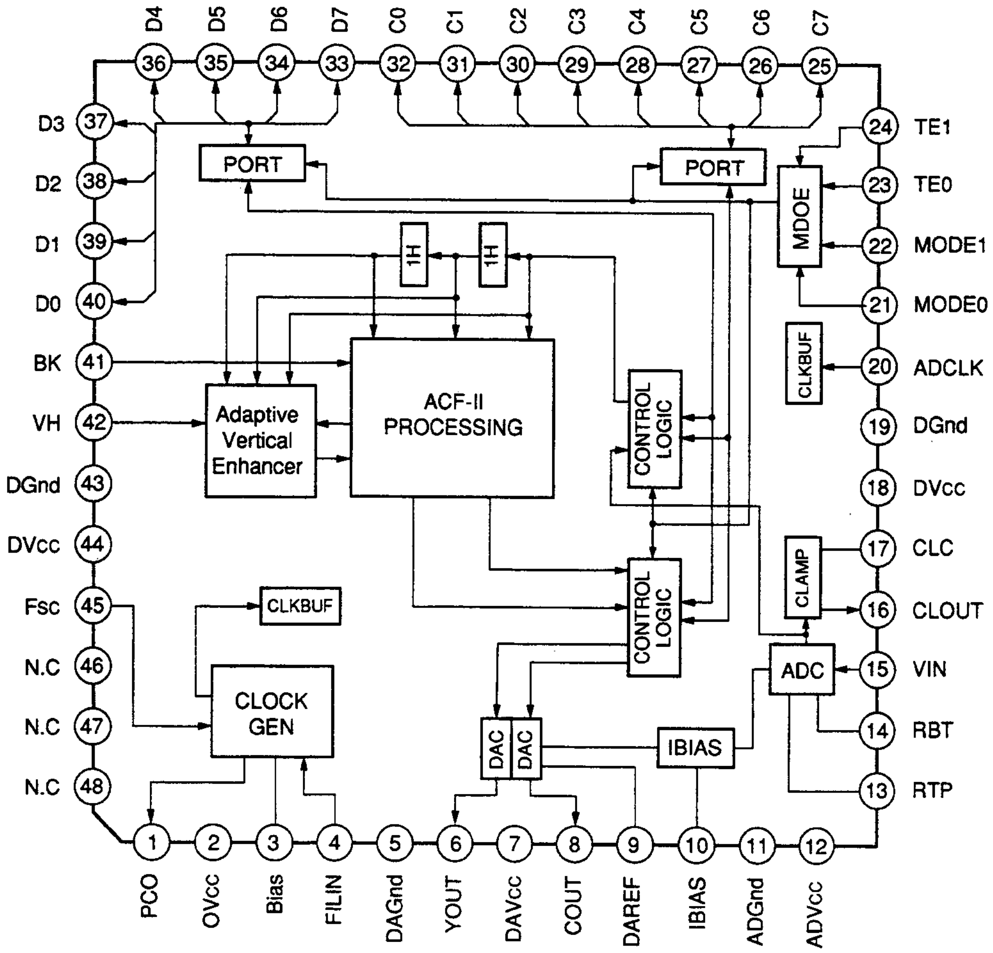

MF1
MF0
LF1
FC1 FC2 FC3 FC4
Vcc
LF2
OFC
LBC LTC
30
29
28
2
3
4
5
15
6
25
18
9
Lin 26
Rin 27
LPF
PS1
PS2
PS3
PS4
PHASE SHIFTER
EFFECT CONTROL
LPF
OFFSET CORRECTION
MATRIX
TONE CONTROL LOW BOOST
VOLUME, BALANCE CONTROL/MUTE
14 L1 OUT
VOLUME CONTROL/MUTE
17 L2 OUT
18 VOL-C
BASS
VOL.
BAL.
19 BAL-C
TREBLE
VOLUME CONTROL/MUTE
16 R2 OUT
TONE CONTROL/ LOW BOOST
VOLUME, BALANCE CONTROL/MUTE
13 R1 OUT
VOLUME CONTROL/MUTE
11 Rear OUT
L+R VOLUME CONTROL/MUTE
12 L+R OUT
½Vcc
I²C BUS INTERFACE
24
22
21
20
23
1
8
7
½Vcc
ADS SDA SCL GND
GND
RBC RTC

●Pin Fuction

No.	NAME	FUNCTION	No.	NAME	FUNCTION
1	GND	GND for analog signal processing	16	R2 OUT	Outputs R channel signal For audio output when an external audio processor, etc. is used.
2	FC1	Connected to the capacitor determining the phase shifter time constant.	17	L2 OUT	Outputs L channel signal For audio output when an external audio processor, etc. is used.
3	FC2		18	VOL – C	Capacitor for absorbing the shock noise of the volume control D/A converter.
4	FC3		19	BAL – C	Capacitor for absorbing the shock noise of the balance control D/A converter.
5	FC4		20	SCL	Serial clock line pin (I²C bus clock input)
6	LF2	Low pass filter	21	SDA	Serial data line pin (I²C bus clock input)
7	RTC	Connected to the capacitor determining the frequency characteristic of R channel treble boost/cut.	22	ADS	Slave address switching pin
8	RBC	Connected to the capacitor determining the frequency characteristic of R channel bass boost/cut.	23	DGND	GND for I²C bus signal
9	LTC	Connected to the capacitor determining the frequency characteristic of L channel treble boost/cut.	24	1/2 Vcc	Power supply voltage middle point filter pin
10	LBC	Connected to the capacitor determining the frequency characteristic of L channel bass boost/cut.	25	OFC	Pin for absorbing the offset of the phase sifter
11	Rear OUT	Outputs L – R signal	26	Lin	Inputs L channel signal
12	L+R OUT	Outputs L + R signal	27	Rin	Inputs R channel signal
13	R1 OUT	Outputs R channel signal (main output)	28	LF1	Low pass filter
14	L1 OUT	Outputs L channel signal (main output)	29	MF0	Output pin of the high pass filter when surround function is in effect (simulated mode)
15	Vcc	+12V power supply	30	MF1	Output pin of the high pass filter when surround function is in effect (simulated mode)

■ MC141622FU (IC3201)
DIGITAL COMB FILTER

●Block Diagram


D4
D5
D6
D7
C0
C1
C2
C3
C4
C5
C6
C7
36
35
34
33
32
31
30
29
28
27
26
25
D3 37
D2 38
D1 39
D0 40
BK 41
VH 42
DGnd 43
DVcc 44
Fsc 45
N.C 46
N.C 47
N.C 48
24 TE1
23 TE0
22 MODE1
21 MODE0
20 ADCLK
19 DGnd
18 DVcc
17 CLC
16 CLOUT
15 VIN
14 RBT
13 RTP
PORT
PORT
MDOE
1H
1H
CLKBUF
Adaptive Vertical Enhancer
ACF-II PROCESSING
CONTROL LOGIC
CONTROL LOGIC
CLAMP
CLKBUF
CLOCK GEN
ADC
DAC
DAC
IBIAS
1
2
3
4
5
6
7
8
9
10
11
12
PCO
OVcc
Bias
FILIN
DAGnd
YOUT
DAVcc
COUT
DAREF
IBIAS
ADGnd
ADVcc

●Pin Fuction

No.	NAME	FUNCTION
1	PCO	Output pin of the phase shifter
2	OVcc	VCO power supply
3	Bias	VCO reference pin
4	FILIN	Inputs voltage for controlling VCO
5	DA Gnd	GND for DA converter
6	COUT	Outputs luminance signals
7	DA Vcc	Power supply for DA converter
8	COUT	Outputs color signal
9	DAREF	DA converter reference pin : Usually connected to DAGnd via a 0.1 µF monolithic ceramic capacitor.
10	IBIAS	Bias circuit current control pin for AD/DA converter : Usually connected to DAGnd via an external resistor.
11	AD Gnd	GND for AD converter
12	AD Vcc	Power supply for AD converter
13	RPT	Top reference voltage pin for AD converter : Internally supplies the top reference voltage.
14	RBT	Bottom reference voltage pin for AD converter : Internally supplies the bottom reference voltage.
15	VIN	AD converter input pin
16	CLOUT	Clamp voltage output pin : Clamps input signals by inputting video signals by AC coupling with connected to VIN.
17	CLC	Determines a time constant during clamp
18	D Vcc	Power supply for digital
19	D Gnd	GND for digital

No.	NAME	FUNCTION
20	ADCLK	AD converter clock input : Effective only in some digital input comb filter modes and test modes. Input level is CMOS level.
21	MODE 0	Mode input : Set to ground level in the normal mode (Fsc)
22	MODE 1	Mode input : Set to ground level in the normal mode (Fsc)
23	TE 0	Test mode input : Usually set to ground level
24	TE 1	Test mode input : Usually set to ground level
25	C7	Digital interface 1 input/output : Usually set to the power supply level.
26	C6	Digital interface 1 input/output : Usually set to the ground level.
27	C5	Digital interface 1 input/output : Usually set to the ground level.
28	C4	Digital interface 1 input/output : Usually set to the ground level.
29	C3	Digital interface 1 input/output : Usually set to the power supply level.
30	C2	Digital interface 1 input/output : Usually set to the ground level.
31	C1	Digital interface 1 input/output : Usually set to the ground level.
32	C0	Digital interface 1 input/output : Usually set to the ground level.
33	D7	Digital interface 2 input/output : Usually set to the power supply level.
34	D6	Digital interface 2 input/output:Usually set to the ground level.
35	D5	Digital interface 2 input/output:Usually set to the ground level.
36	D4	Digital interface 2 input/output:Usually set to the ground level.
37	D3	Digital interface 2 input/output:Usually set to the ground level.
38	D2	Digital interface 2 input/output:Usually set to the ground level.
39	D1	Digital interface 2 input/output:Usually set to the ground level.
40	D0	Digital interface 2 input/output:Usually set to the ground level.
41	BK	Supports a black-and-white broadcasting:Usually set to the ground level.
42	VH	Vertical contouring correction switch : Usually set to the ground level.
43	D Gnd	GND for digital
44	D Vcc	Power supply for digital
45	Fsc	Color subcarrier input : Inputs a 3.58 MHz color subcarrier frequency by AC coupling with an external capacitor (in normal (Fsc) mode).
46	N.C	Not used. Usually set to the ground level.
47	N.C	Not used. Usually set to the ground level.
48	N.C	Not used. Usually set to the ground level.

■ PD5301B (IC903)
SYSTEM CONTROL MICROCOMPUTER

●Pin Fuction

[Note] I : CMOS input N : Nch open-drain output O : CMOS output

No.	NAME	I/O	FUNCTION	ACT.
1	OSC 1	I	Display clock input/output.	–
2	OSC 2	O		
3	KEY	I	Main unit key scan signal input. Decodes PD5136 format signals.	L
4	N.C.	I	Not used.	–
5	REMOTE	I	Remote control signal input. Decodes SR format signals.	L
6	DPO	I	DPO analog voltage input.	–
7	COLOR	N	Color level control PWM output.	H
8	TINT	N	Tint level control PWM output.	H
9	CONTR	N	Contrast level control PWM output.	H
10	BRIGHT	N	Brightness level control PWM output.	H
11	SHARP	N	Sharpness level control PWM output.	H
12	INT/EXT	N	Speaker internal/external switching. (H: Internal, L: External)	–
13	SMT ACK	I	Smart (learning remote control function only) microcomputer busy signal input.	H
14	SMT RST	N	Smart (learning remote control function only) microcomputer reset signal input.	L
15	H SYNC	I	Horizontal sync count input for the tuner reception. Judged that a broadcasting station is present when the number of H-SYNC during 1 mS is 12 to 18 for eight mS continuously. Judged that a broadcasting station is not present when other conditions continue for six mS continuously.	–
16	AC CLK	I	AC clock detection input. Used for detecting the AC power supply off. (Reset when AC is absent for 100 mS.)	–

No.	NAME	I/O	FUNCTION	ACT.
17	SR O/X	I	SR pin detection input.	H
18	BACK UP	O	Back-up to the smart (learning remote control function only) microcomputer.	H
19	SMT ENB	N	Enables the smart (learning remote control function only) microcomputer.	L
20	SCHK	I	I^2C serial transfer clock input.	–
21	SCLK	N	I^2C serial transfer clock. Audio multiple IC Used for E^2RPROM.	–
22	SDATA	I/N	I^2C serial data input/output.	
23	1M O/X	N	1M/40K (remote control input decision). L only when a 1 MHz signal is received.	–
24	DATA IN	I	Serial data input. Used for communicating with a microcomputer (PD5320A).	–
25	SM CLK	N	Serial clock.	
26	DATA OUT	N	Serial data output.	
27	CNVss		Connected to VSS.	–
28	VM MUTE	O	Signal for muting a velocity modulation. Same timing as BLK OUT.	–
29	$\overline{\text{RESET}}$	I	System reset. Reset when L is input for more than 0.95 µS (in case OSC=4.19 MHz).	L
30	Xin	I	Input/output pin of the main clock generation circuit. Connected to a 8.0 MHz ceramic oscillator.	–
31	Xout	O		–
32	Vss		Applies 0V to VSS.	–
33	CONV B-MUT	O	R, G, B muting output.	H
34	CONV G-MUT	O		H
35	CONV R-MUT	O		H
36	TV AMUTE	O	Mutes the tuner sound.	H
37	CLK	O	Serial clock. (PLL (tuner), CCD, converter, port expander 1/2)	–
38	OPT 2	I	Model selection (selects the microcomputer functions).	–
39	OPT 1	I		
40	CENT.O/X	I	Center channel pin detection input.	H

	83 family	85 family	PRO family	(83)
OPT1	L	L	H	H
OPT2	L	H	L	H

No.	NAME	I/O	FUNCTION	ACT.
41	V O/X	I	Video signal present/absent decision input. Present: H, Absent: L.	H
42	RELAY	O	Power supply relay control signal output. ON: L, OFF: H	L
43	EXP 1 ENB	O	Enables the port expander M66320. REC out muting, input select, ACL switching, etc.	H
44	TV ENB	O	PLL IC (TSA5520) data enable	H
45	CNV ENB	O	Converter IC (PM0002A) data enable.	L
46	DATA	O	Serial data output. (PLL (tuner), CCD, converter, port expander 1/2)	H
47	C.C RST	O	CCD microcomputer hard reset output.	–
48	C.C ENB	O	CCD microcomputer data enable.	L
49	V MUTE	O	Video mute output.	–
50	AFT	I	Front end AFT signal input.	H
51	EXP 2 ENB	O	Port expander 2 enable.	H
52	S RST	O	I^2C serial line microcomputer block external connection switch. H: External connection.	H
53	A MUTE	O	Audio mute output.	–
54	TV_VMUTE	O	TV video mute output.	L
55	TEST	I	Tuner test mode detection input.	L
56	LOCK	I	PLL lock detection input.	L
57	BLK_OUT	O	OSD video output.	H
58	TEST_CRS	O		H
59	OSD B	O		H
60	OSD G	O		H
61	OSD R	O		H
62	VSYNC	I	OSD sync signal input	L
63	HSYNC	I		L
64	VDD	I		–

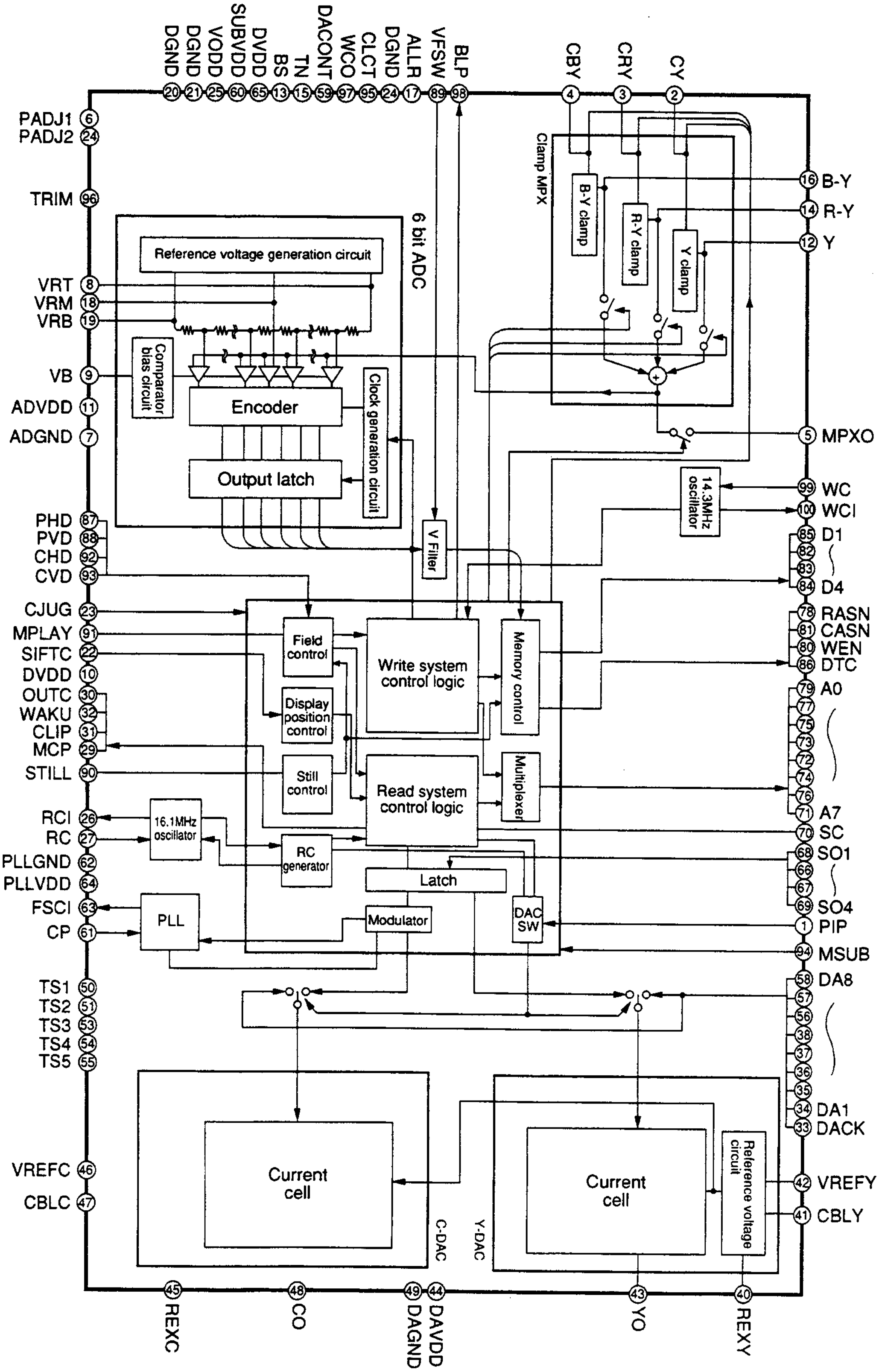
■ PD5320A (IC3402)
MICROCOMPUTER FOR REMOTE CONTROL

●Pin Fuction

No.	NAME	I/O	FUNCTION	ACT.
1	SROUT P62	O	Remote control signal output (envelope waveform)	H
2	CARY.OUT P61	O	Remote control signal carrier output	–
3	MUTE P61	O	Remote control through-line muting. (Muting on when the remote control signal is output.)	–
4	057	O	Not used.	–
5	P58	O	Not used.	–
6	CCRARY.IN P55/CNTR1	I	Remote control carrier signal input. (Carrier frequency decision)	L
7	P54/CHTR0	O	Not used.	–
8	P53/INT5	O	Not used.	–
9	P52/INT4	O	Not used.	–
10	P51/INT3	O	Not used.	–
11	SMART.ST P50/INT2	I/O	Communication with the main microcomputer. Communication request input/ output.	L
12	P47/Srdy	O	Not used.	–
13	SMART.CK P46/Sclk	I	Communication with the main microcomputer. Clock input.	–
14	P45/Txd	O	Not used.	–
15	SMART.DT P44/Rxd	I/O	Communication with the main microcomputer. Data input/output.	–
16	CARY.IN P43/INT1	I	Remote control carrier signal input. (Carrier frequency decision)	–
17	EMARGENCY P42/INT0	I	Back-up trigger signal input.	L
18	CNVss	I	GND	–
19	RESET	I	Reset input.	L
20	P41	O	Not used.	–
21	P40	O	Not used.	–
22	Xin	–	4 MHz oscillator	–
23	Xout	–		–
24	Vss	I/O	GND	–
25	P27/DB7	I/O	SRAM control data 7.	–
26	P26/DB6	I/O	SRAM control data 6.	–
27	P25/DB5	I/O	SRAM control data 5.	–
28	P24/DB4	I/O	SRAM control data 4.	H
29	P23/DB3	I/O	SRAM control data 3.	–
30	P22/DB2	I/O	SRAM control data 2.	L
31	P21/DB1	I/O	SRAM control data 1.	–
32	P20/DB0	I/O	SRAM control data 0.	–
33	P17/AD15	O	SRAM control address 15.	–
34	P16/AD14	O	SRAM control address 14.	–
35	P15/AD13	O	SRAM control address 13.	–
36	P14/AD12	O	SRAM control address 12.	–
37	P13/AD11	O	SRAM control address 11.	–
38	P12/AD10	O	SRAM control address 10.	–
39	P11/AD9	O	SRAM control address 9.	–
40	P10/AD8	O	SRAM control address 8.	–
41	P07/AD7	O	SRAM control address 7.	–
42	P06/AD6	O	SRAM control address 6.	–
43	P05/AD5	O	SRAM control address 5.	–
44	P04/AD4	O	SRAM control address 4.	–
45	P03/AD3	O	SRAM control address 3.	–
46	P02/AD2	O	SRAM control address 2.	–
47	P01/AD1	O	SRAM control address 1.	–
48	P00/AD0	O	SRAM control address 0.	–
49	RD P37/RD	O	SRAM control read timing.	–
50	WR P36/WR	O	SRAM control write timing.	–
51	P35/SYNC	O	Not used.	–
52	P34/ϕ	O	Not used.	–
53	P33/RESET ou	O	Not used.	–
54	P32/ONW	O	Not used.	–
55	P31	O	Not used.	–
56	P30	O	Not used.	–
57	Vcc	O	Power supply 5V.	–
58	P71	O	Not used.	–
59	P70	O	Not used.	–
60	P67	O	Not used.	–
61	P68	O	Not used.	–
62	P65	O	Not used.	–
63	P64	O	Not used.	–
64	P63	O	Not used.	–

■ HD49412 FS (IC3002)
P IN P MEMORY CONTROLLER

●Block Diagram


DGND 20
DGND 21
VODD 25
SUBVDD 60
DVDD 65
BS 13
TN 15
DACONT 59
WCO 97
CLCT 95
DGND 24
ALLR 17
VFSW 89
BLP 98
CBY 4
CRY 3
CY 2
PADJ1 6
PADJ2 24
TRIM 96
VRT 8
VRM 18
VRB 19
VB 9
ADVDD 11
ADGND 7
PHD 87
PVD 88
CHD 92
CVD 93
CJUG 23
MPLAY 91
SIFTC 22
DVDD 10
OUTC 30
WAKU 32
CLIP 31
MCP 29
STILL 90
RCI 26
RC 27
PLLGND 62
PLLVDD 64
FSCI 63
CP 61
TS1 50
TS2 51
TS3 53
TS4 54
TS5 55
VREFC 46
CBLC 47
REXC 45
CO 48
DAGND 49
DAVDD 44
YO 43
REXY 40
B-Y 16
R-Y 14
Y 12
MPXO 5
WC 99
WCI 100
D1 85
82
83
D4 84
RASN 78
CASN 81
WEN 80
DTC 86
A0 79
77
75
73
72
74
76
A7 71
SC 70
SO1 68
66
67
SO4 69
PIP 1
MSUB 94
DA8 58
57
56
38
37
36
35
DA1 34
DACK 33
VREFY 42
CBLY 41
6 bit ADC
Reference voltage generation circuit
Comparator bias circuit
Encoder
Output latch
Clock generation circuit
Clamp MPX
B-Y clamp
R-Y clamp
Y clamp
14.3MHz oscillator
V Filter
Field control
Display position control
Still control
Write system control logic
Read system control logic
Memory control
Multiplexer
16.1MHz oscillator
RC generator
Latch
Modulator
DAC SW
PLL
Current cell
C-DAC
Current cell
Y-DAC
Reference voltage circuit

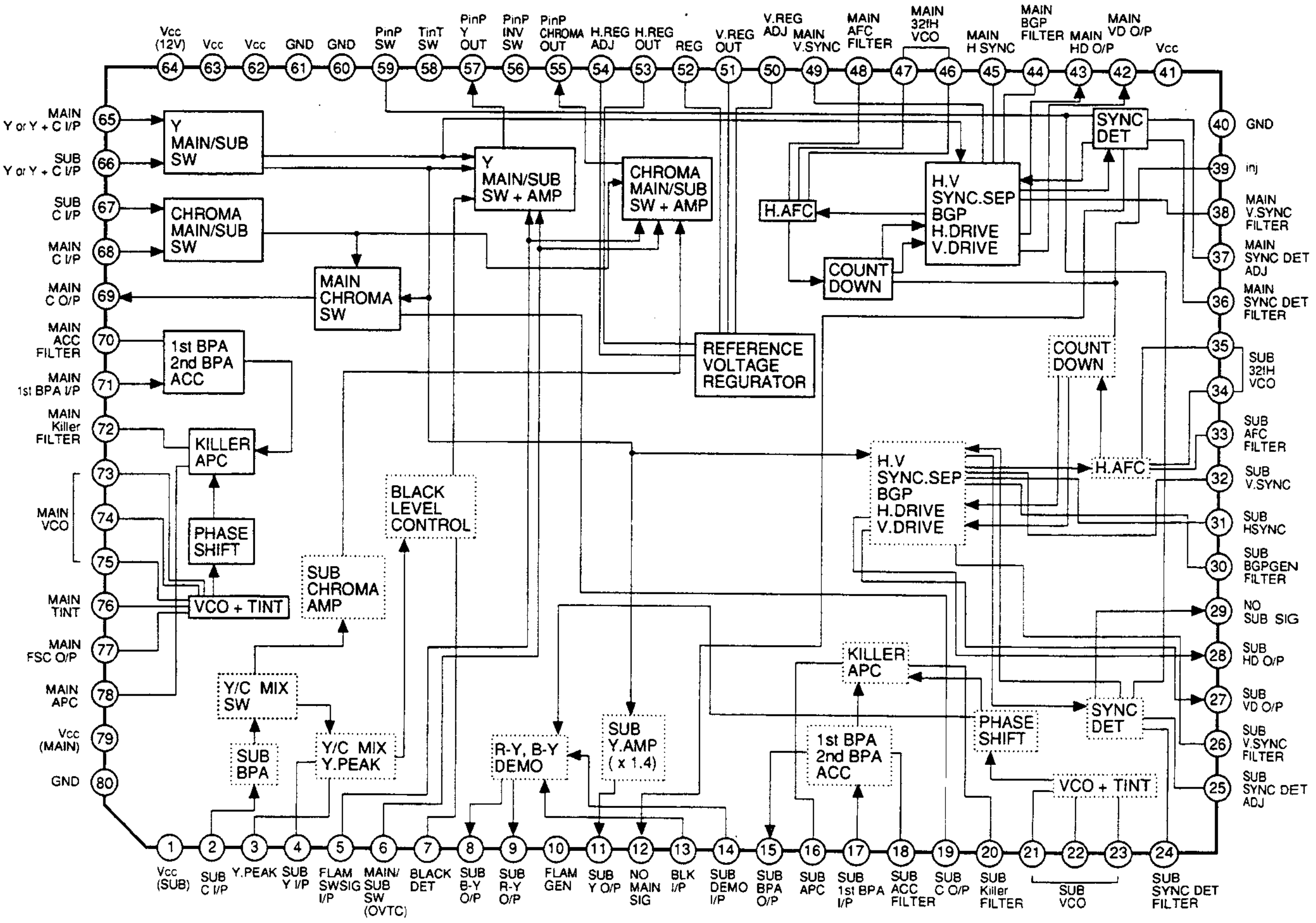
●Pin Function

No.	NAME	I/O	FUNCTION	No.	NAME	I/O	FUNCTION
1	PIP	I	P-in-P mode input	39	(NC)	—	No connection
2	CY	—	Y signal clamping filter	40	REXY	—	DAC external resistor connection
3	CRY	—	R-Y signal clamping filter	41	CBLY	—	DAC bypass capacitor connection (1)
4	CBY	—	B-Y signal clamping filter	42	VREFY	I	DAC reference voltage input (1)
5	MPXO	—	Test-use pin	43	YO	O	Y signal output
6	PADJ1	I	Sub picture output timing control (1)	44	DAVDD	—	DAC VDD
7	ADGND	—	Analog system ground	45	REXC	—	No connection
8	VRT	—	ADC reference voltage Hi level input	46	VREFC	—	DAC reference voltage input (2)
9	VB	O	ADC comparator bias voltage	47	CBLC	—	DAC bypass capacitor connection (2)
10	DVDD	—	Digital system VDD	48	CO	O	C signal output
11	ADVDD	—	Analog system VDD	49	DAGND	—	GND
12	Y	I	Y signal input	50	TS1	I	Test-use pin
13	BS	I	Test-use pin	51	TS2		
14	RY	I	R-Y signal input	52	(NC)	—	No connection
15	TN	I	Test-use pin	53	TS3	I	Test-use pin
16	BY	I	B-Y signal input	54	TS4		
17	ALLR	I	Test-use pin	55	TS5		
18	VRM	—	ADC reference voltage intermediate tap	56	DA6	I	Digital signal input
19	VRB	—	ADC reference voltage Lo level input	57	DA7		
20	DGND	—	Digital system ground	58	DA8		
21	DGND	—	Digital system ground	59	DACONT	I	Test-use pin
22	SIFTC	I	Sub picture position shift	60	SUB VDD	—	Substrate VDD
23	CJUG	I	Sub picture on/off signal input	61	CP	—	PLL phase comparator filter
24	DGND	—	Digital system ground	62	PLLGND	—	PLL ground
25	VODD	—	Oscillator VDD	63	FSCI	I	Main picture burst lock fsc input
26	RCI	O	Read clock feedback signal	64	PLLVDD	—	PLL VDD
27	RC	I	Read clock signal input	65	DVDD	—	Digital system VDD
28	PADJ2	I	Sub picture output timing control (2)	66	SO2	I	Memory read data input
29	MCP	O	Pedestal clamp timing signal	67	SO3		
30	OUTC	O	Sub picture output timing signal	68	SO1		
31	CLIP	O	Sub picture noise clip timing signal	69	SO4		
32	WAKU	O	Sub picture frame output timing signal	70	SC	O	Serial read clock output
33	DACK	I	DAC clock	71	A7 (MSB)	O	Memory address data output
34	DA1	I	Digital signal input	72	A4		
35	DA2			73	A3		
36	DA3			74	A5		
37	DA4			75	A2		
38	DA5			76	A6		
				77	A1		

No.	NAME	I/O	FUNCTION
78	RASN	O	Memory row address assigned output
79	A0 (LSB)	O	Memory address data output
80	WEN	O	Sub picture data write control output
81	CASN	O	Memory column address assigned output
82	D2	O	Memory write data output
83	D3		
84	D4		
85	D1		
86	DTN	O	Memory data transmission mode/read mode control output
87	PHD	I	Main picture horizontal sync signal input
88	PVD	I	Main picture vertical sync signal input
89	VFSW	I	Vertical filter on/off signal input
90	STILL	I	Sub picture still mode control
91	MPLAY	I	Control signal for special playback
92	CHD	I	Sub picture horizontal sync signal input
93	CVD	I	Sub picture voltage sync signal input
94	MSUB	I	Multi sub picture on/off signal input
95	CLCT	I	Test-use pin
96	TRIM	I	Test-use pin
97	WCO	I/O	Test-use pin
98	BLP	O	Blanking pulse output
99	WC	I	Write clock signal input
100	WCI	O	write clock feedback signal

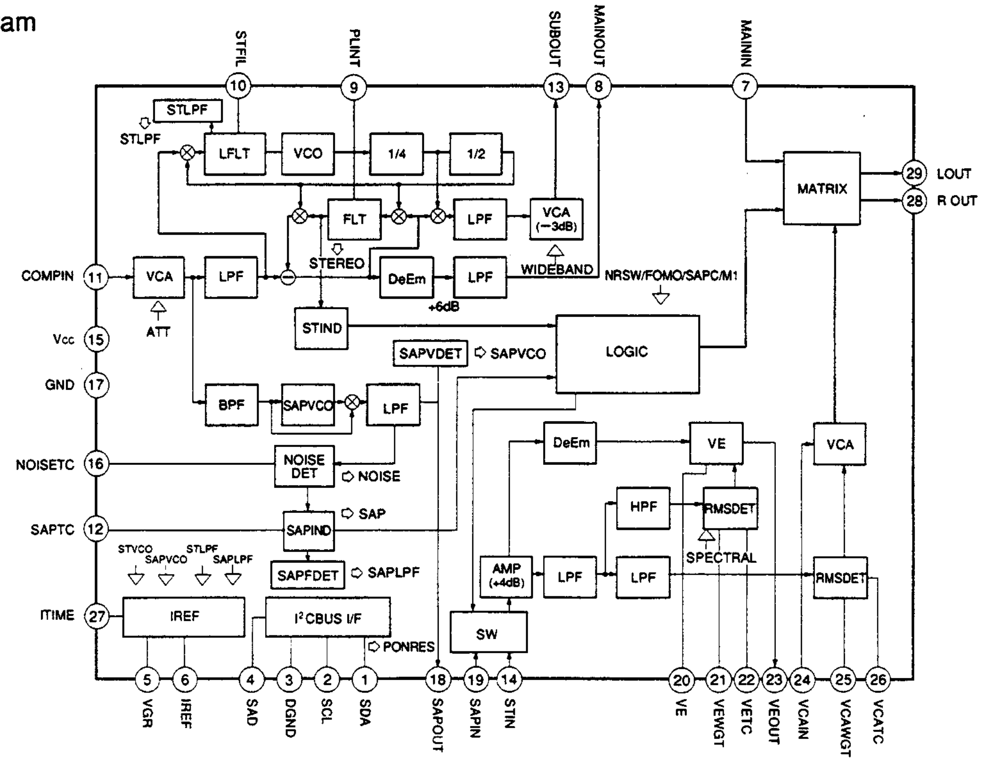
■ HA11569FS (IC3001)
P IN P CHROMA DECODER

●Block Diagram


Vcc (12V)
Vcc
Vcc
GND
GND
PinP SW
TinT SW
PinP Y OUT
PinP INV SW
PinP CHROMA OUT
H.REG ADJ
H.REG OUT
REG
V.REG OUT
V.REG ADJ
MAIN V.SYNC
MAIN AFC FILTER
MAIN 32fH VCO
MAIN H SYNC
MAIN BGP FILTER
MAIN HD O/P
MAIN VD O/P
Vcc
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40 GND
39 inj
38 MAIN V.SYNC FILTER
37 MAIN SYNC DET ADJ
36 MAIN SYNC DET FILTER
35
34 SUB 32fH VCO
33 SUB AFC FILTER
32 SUB V.SYNC
31 SUB HSYNC
30 SUB BGPGEN FILTER
29 NO SUB SIG
28 SUB HD O/P
27 SUB VD O/P
26 SUB V.SYNC FILTER
25 SUB SYNC DET ADJ
MAIN Y or Y + C I/P 65
SUB Y or Y + C I/P 66
SUB C I/P 67
MAIN C I/P 68
MAIN C O/P 69
MAIN ACC FILTER 70
MAIN 1st BPA I/P 71
MAIN Killer FILTER 72
73
MAIN VCO 74
75
MAIN TINT 76
MAIN FSC O/P 77
MAIN APC 78
Vcc (MAIN) 79
GND 80
1 Vcc (SUB)
2 SUB C I/P
3 Y.PEAK
4 SUB Y I/P
5 FLAM SWSIG I/P
6 MAIN/SUB SW (OVTC)
7 BLACK DET
8 SUB B-Y O/P
9 SUB R-Y O/P
10 FLAM GEN
11 SUB Y O/P
12 NO MAIN SIG
13 BLK I/P
14 SUB DEMO I/P
15 SUB BPA O/P
16 SUB APC
17 SUB 1st BPA I/P
18 SUB ACC FILTER
19 SUB C O/P
20 SUB Killer FILTER
21
22 SUB VCO
23
24 SUB SYNC DET FILTER
Y MAIN/SUB SW
CHROMA MAIN/SUB SW
Y MAIN/SUB SW + AMP
CHROMA MAIN/SUB SW + AMP
MAIN CHROMA SW
1st BPA 2nd BPA ACC
KILLER APC
PHASE SHIFT
VCO + TINT
REFERENCE VOLTAGE REGURATOR
H.AFC
COUNT DOWN
H.V SYNC.SEP BGP H.DRIVE V.DRIVE
SYNC DET
COUNT DOWN
H.V SYNC.SEP BGP H.DRIVE V.DRIVE
H.AFC
BLACK LEVEL CONTROL
SUB CHROMA AMP
Y/C MIX SW
SUB BPA
Y/C MIX Y.PEAK
R-Y, B-Y DEMO
SUB Y.AMP (x 1.4)
KILLER APC
1st BPA 2nd BPA ACC
PHASE SHIFT
SYNC DET
VCO + TINT

■ CXA1734S (IC4901)
US MPX DECODER

●Block Diagram


STFIL
PLINT
SUBOUT
MAINOUT
MAININ
STLPF
STLPF
LFLT
VCO
1/4
1/2
FLT
LPF
VCA (−3dB)
STEREO
DeEm
LPF
+6dB
WIDEBAND
NRSW/FOMO/SAPC/M1
MATRIX
LOUT
R OUT
COMPIN
VCA
ATT
LPF
STIND
SAPVDET
SAPVCO
LOGIC
Vcc
GND
BPF
SAPVCO
LPF
NOISETC
NOISE DET
NOISE
DeEm
VE
VCA
SAPTC
SAPIND
SAP
HPF
RMSDET
SPECTRAL
STVCO
SAPVCO
STLPF
SAPLPF
SAPFDET
SAPLPF
AMP (+4dB)
LPF
LPF
RMSDET
ITIME
IREF
I²CBUS I/F
PONRES
SW
VGR
IREF
SAD
DGND
SCL
SDA
SAPOUT
SAPIN
STIN
VE
VEWGT
VETC
VEOUT
VCAIN
VCAWGT
VCATC

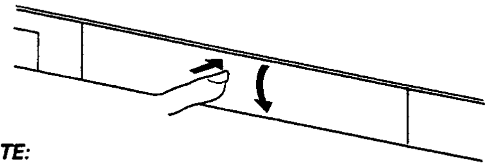
●Pin Function

No.	NAME	FUNCTION
1	SDA	Serial data input/output pin.
2	SCL	Serial clock input pin.
3	DGND	GND of digital section.
4	SAD	Slave address control switch. By changing the voltage supplied to this pin, the slave address is selected.
5	VGR	Band gap reference output pin.
6	IREF	Sets the filter and VCO reference currents. The adjustment is performed with the BUS DATA according to the current flowing to this pin.
7	MAININ	Receives the signal (L+R) from the MAINOUT of Pin 8.
8	MAINOUT	Outputs the L+R signal.
9	PLINT	Integration pin of the pilot cancel circuit loop filter.
10	STFIL	Integration pin of the stereo block PLL loop filter.
11	COMPIN	Receives the audio multiple signal.
12	SAPTC	Sets the time-constant of the SAP carrier detection circuit.
13	SUBOUT	Outputs the L−R signal.
14	STIN	Receives the signal (L−R) from SUBOUT of Pin 13.
15	Vcc	Power supply voltage pin.
16	NOISETC	Sets the time-constant of the NOISE detection circuit.
17	GND	Analog GND pin.
18	SAPOUT	SAP FM detector output pin.
19	SAPIN	Receives the signal (SAP) from SAPOUT of Pin 18.
20	VE	Variable de-emphasis integration pin
21	VEWGT	Superimposing pin for the variable de-emphasis control effective value detection circuit.
22	VETC	Determines the return time-constant for the variable de-emphasis control effective value detection circuit.
23	VEOUT	Variable de-emphasis output pin.
24	VCAIN	VCA input pin. Receives the variable de-emphasis output signal of Pin 23 via the coupling capacitor.
25	VCAWGT	Superimposing pin for the VCA control effective value detection circuit.
26	VCATC	Determines the return time-constant for the VCA control effective value detection circuit.
27	ITIME	Sets the reference current for the effective value detection timing current. The timing current determines the return time-constant and variable de-emphasis characteristics of the detection circuit.
28	ROUT	Rch output pin.
29	LOUT	Lch output pin.
30	NC	—

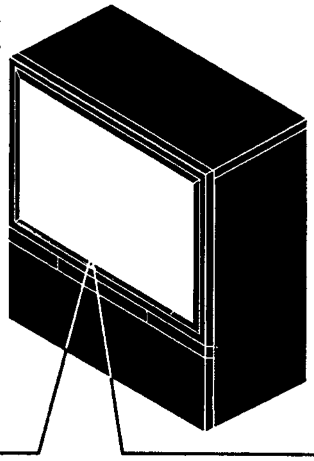
14. FACILITIES

● FRONT PANEL FACILITIES

A flip-down door conceals the control panel. Push gently and release, to open the door. To close the door, lift it back up into place. Push and release to open.



NOTE:
If you accidentally pull the door, it may not shut properly. Push in when shutting the door to restore it to normal operation.



Control Panel
Use the remote control unit to operate most functions.

① MAIN POWER switch (Except PRO-98)

Main power switch of this unit.
When the power is turned off in the STANDBY mode (RED indicator), the unit sets into the STANDBY mode (RED indicator) when the power is turned on again the next time.
Likewise, when the power is turned off at ON (GREEN indicator), the unit sets into the ON mode (GREEN indicator) when the power is turned on again the next time.

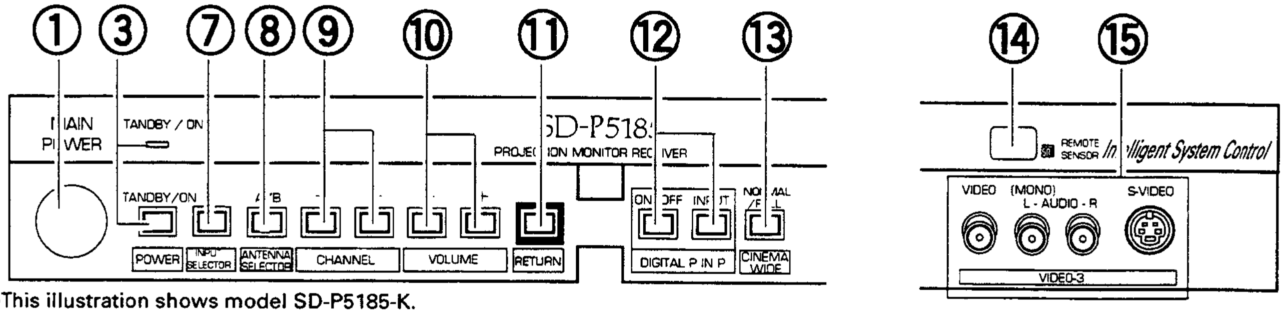
② MAIN POWER button (PRO-98 only)

Main power switch of this unit.
When the power is turned off in the STANDBY mode (RED indicator), the unit sets into the STANDBY mode (RED indicator) when the power is turned on again the next time.
Likewise, when the power is turned off at ON (GREEN indicator), the unit sets into the ON mode (GREEN indicator) when the power is turned on again the next time.

③ POWER switch and indicator (STANDBY/ON) (Except PRO-98)

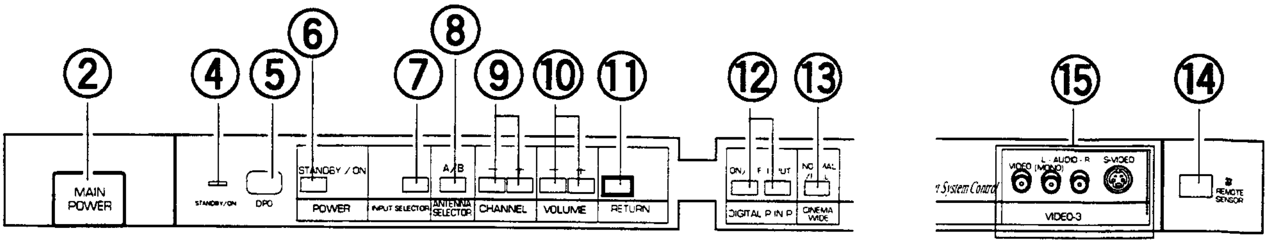
Press once to turn on the power. Press again to turn the power off. The POWER indicator lights up in green when the power is on. The indicator lights up in RED in the STANDBY mode.

•For SD-P5185, SD-P5183 and SD-P4683


①
③
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
MAIN POWER
STANDBY / ON
STANDBY/ON
A/B
SD-P518
PROJECTION MONITOR RECEIVER
ON/OFF INPUT
NORMAL/FULL
POWER
INPUT SELECTOR
ANTENNA SELECTOR
CHANNEL
VOLUME
RETURN
DIGITAL P IN P
CINEMA WIDE
REMOTE SENSOR
Intelligent System Control
VIDEO (MONO)
L - AUDIO - R
S-VIDEO
VIDEO-3

•This illustration shows model SD-P5185-K.

•For PRO-98


②
④
⑤
⑥
⑧
⑦
⑨
⑩
⑪
⑫
⑬
⑮
⑭
MAIN POWER
STANDBY/ON
DPO
STANDBY / ON
A/B
POWER
INPUT SELECTOR
ANTENNA SELECTOR
CHANNEL
VOLUME
RETURN
ON/OFF INPUT
NORMAL/FULL
DIGITAL P IN P
CINEMA WIDE
System Control
L - AUDIO - R
VIDEO (MONO)
S-VIDEO
VIDEO-3
REMOTE SENSOR

ATTENTION

The Projection Monitor Receiver will not function properly in the following cases.

- Lightning storms.
- High static electricity environment.
- Poor voltage regulation in the power source.

If the Projection Monitor does not operate properly, reset it as follows:
Turn off MAIN POWER switch after some time, turn it back on with the MAIN POWER switch and POWER switch.

④ POWER STANDBY/ON indicator (PRO-98 only)

The POWER indicator lights up in green when the power is on. The indicator lights up in RED in the STANDBY mode.

⑤ DPO sensor (PRO-98 only)

⑥ POWER STANDBY/ON switch (PRO-98 only)

Press once to turn on the power. Press again to turn the power off.

⑦ INPUT SELECTOR button

Press to select your program source: TV, LD player, VIDEO1, VIDEO 2 or VIDEO 3. Each press of the button changes the selection to the next source.

⑧ ANTENNA SELECTOR(A/B) button

Press to switch between ANTENNA-A and ANTENNA-B when you wish to watch TV.

⑨ CHANNEL buttons

Press plus (+) or minus (–) to tune to a higher or lower channel. Only those channels in channel preset can be tuned in by this method.

⑩ VOLUME buttons

Press the plus (+) or minus (-) button to raise or lower the volume.

⑪ RETURN button

Press to set the Projection Monitor to its initial mode instantly if either sound or picture disappear from the speaker system or the screen during adjustment.

- Adjust the Projection Monitor again after pressing the RETURN button, as all settings have been cleared.

When the RETURN button is pressed, the Projection Monitor is set as follows:
PICTURE: Parameters, set to 0.
SOUND: Parameters, set to 0.
VOLUME: Remains at the last setting.
P-IN-P/ VNR/ MUTE/SUPER BASS/
F. SURROUND/DPO: Set to OFF.
INPUT SELECTOR: Set to TV.
TV CHANNEL: Remains at the last channel set.
MTS: Remains at the last setting.
CC: CC-OFF
CINEMA WIDE: Set to the NORMAL CINEMA mode.
PICTURE EQ: Set to OFF.

- When this button is pressed during the outer point convergence, the outer point convergence contents return to the initial state.

⑫ DIGITAL P IN P (Picture-in-Picture) buttons

ON/OFF:	Press to turn the Picture-in-Picture function on and off.
INPUT:	Press to select the input source for the sub picture.

NOTES:

- *When P IN P is set to on, the reflection signal is output to the Main screen from the S-VIDEO jacks not to the Sub picture. The composite signal passing through the RCA-type pin plug is output to both the Main screen and Sub picture.*
- *When the P IN P ON/OFF button is pressed and held for more than 4 seconds, the Projection Monitor will go into its demonstration mode (see front cover).*
- *When buttons other than P IN P ON/OFF are pressed, the demonstration mode ends.*
- *During still playback, special effect playback, or when searching an LD or video cassette tape visually forward or backward using the Main screen, shaking may occur in the Sub picture.*
- *While the P IN P function is on, the Sub picture may disappear when the Main screen signal is cut.*
  If the Main screen signal is supplied again, the original mode will be restored. Pictures appear on both the Main screen and the Sub picture when the Main screen signal is supplied.

⑬ CINEMA WIDE (NORMAL/FULL) button

Press to select whether the normal picture is to be displayed (NORMAL CINEMA mode) or the letter-box size (U. S. Standard wide) picture is to be displayed to fill the screen (FULL CINEMA).

⑭ REMOTE SENSOR

This sensor picks up infrared signals from the remote control unit.

⑮ INPUT jacks (VIDEO-3)

These front panel jacks are convenient for connecting a portable VCR, a video camera, a recorder or other temporary video source to the monitor. When the audio signal of the source to be connected is monaural, connect the L (MONO) jack.
Use the S-VIDEO jack when connecting an S-VHS or ED beta VCR, or an LD player which has a S-output jacks.

NOTE:

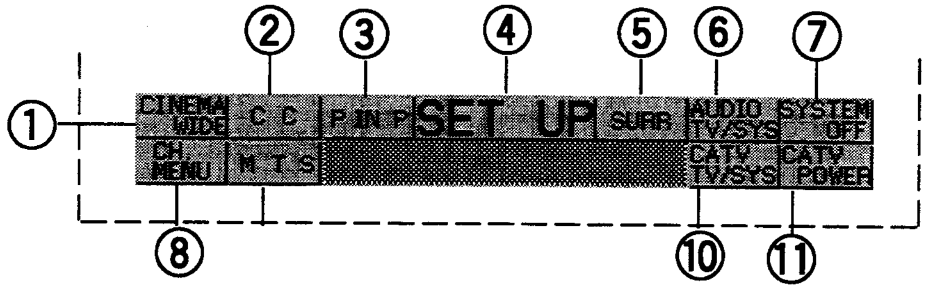
On rare occasions, an electrical discharge may occur inside the CRT. It makes a short, sharp pop and either no sound is produced or the volume level changes by itself. The Picture-in-Picture function will be cancelled automatically if an electrical discharge occurs when this function is engaged. However, VNR resumes automatically when an electrical discharge occurs. When other abnormal functionings are suspected, turn off the power of the unit at the ① MAIN POWER switch, and after some time, turn on the power with ① MAIN POWER switch and ② POWER switch. If the abnormal functionings cannot be corrected or repeat, contact an authorized PIONEER service center.

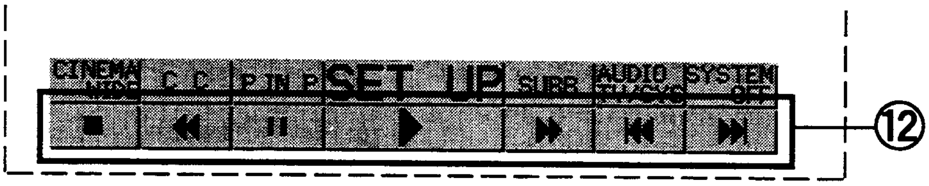
Caution:
Do not press any operation button on the Projection Monitor or on the remote control unit while recording is in progress. Signals from the REC jacks may be temporarily interrupted when a button is pressed.

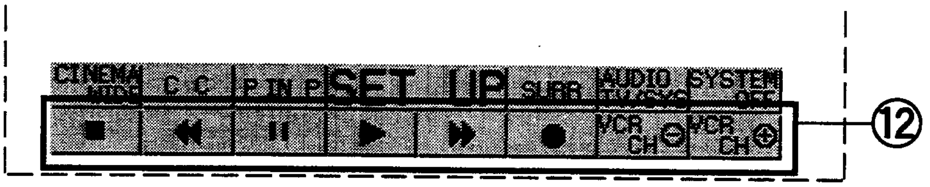
● MENU FACILITIES

•For SD-P5185 and PRO-98

•When the MENU button of the remote control unit is pressed, the following screen will be displayed.


②
③
④
⑤
⑥
⑦
①
CINEMA WIDE
C C
P IN P
SET UP
SURR
AUDIO TV/SYS
SYSTEM OFF
CH. MENU
M T S
CATV TV/SYS
CATV POWER
⑧
⑩
⑪


CINEMA WIDE
C C
P IN P
SET UP
SURR
AUDIO TV/SYS
SYSTEM OFF
⑫


CINEMA WIDE
C C
P IN P
SET UP
SURR
AUDIO TV/SYS
SYSTEM OFF
VCR CH⊖
VCR CH⊕
⑫

① CINEMA WIDE menu

Select to select the NORMAL CINEMA mode or FULL CINEMA mode.

② CC MODE menu

Select to select the mode of displaying the character information contained in closed caption broadcasting.

Select from OFF, CC-1, CC-2, CC-3, CC-4, T-1, T-2, T-3, or T-4.

③ Picture-in-Picture Control

Any program source connected to the Projection Monitor can be displayed on the screen simultaneously with any other source.

ON / OFF: Press to turn the Picture-in-Picture function on and off.
INPUT: Select to select the input source for the sub picture while in 1-sub picture mode.
SWAP: When only one sub picture is displayed, select to exchange the position of the main picture and sub picture.
SHIFT: Select to move the sub picture to a different place on the screen.

④ SET UP menu

Select to perform each setting.

⑤ SURR menu

In case the surround codes have been learned by REMOTE SET UP, call these codes.

⑥ AUDIO TV/SYS;

Set to the SYS when outputting remote control signal to the receiver connected to the monitor.

⑦ SYSTEM OFF;

Switches power to this unit, the TV and the currently selected function OFF.

⑧ CH. MENU menu

Select to select the station you wish to view on the monitor.

⑨ MTS (Multichannel TV Sound) menu

Select to select the reception mode for multichannel TV.
Select from MAIN, SAP, MAIN/SAP, or MONO.

⑩ CATV TV/SYS;

Set whether to view TV broadcasts received by the antenna or view TV broadcasts received by the cable box.

⑪ CATV POWER;

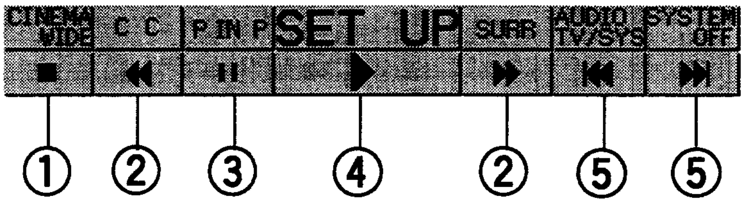
Select to turn on or off the power of the CATV converter in the REMOTE SET UP condition.

⑫ LD/VCR control;

See the next page.

Connect System remote control and IR REPEATER.
LD players and VCRs that have been called up, setting up preset, and learned with referring to REMOTE SET UP can be operated.

⑫ LD Player Control



1. **Press the LD ONE TOUCH OPERATION button to set the input selector of the monitor to LD.**
2. **Turn on the MENU with the MENU button.**
3. **Press the POWER button to turn the power on.**

① **Stop (■) button**
Press once to stop playback.

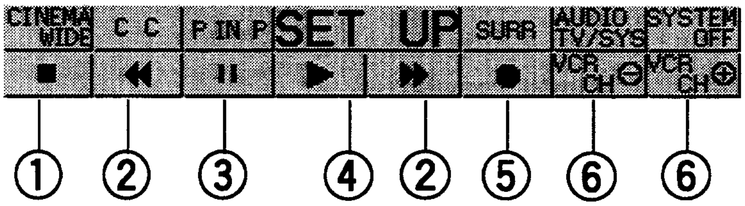
② **Scan (◀◀ ▶▶)button**
Press the ▶▶ side of the button to search in the forward direction while playing a videodisk.
Press the ◀◀ side of the button to search in the reverse direction while playing a videodisk.

③ **Pause/Still (II) button**
Press to interrupt videodisk playback temporarily. Press the button again to resume playback.

④ **Play (▶) button**
Press to begin playback

⑤ **Chapter Skip (⏮ ⏭) menu (monitor screen only)**
Press the ⏭ side of the button to skip directly to the beginning of the next chapter, press the ⏮ side to skip directly back to the beginning of the chapter currently in play. This operation can only be performed on an LD Player with a chapter skip function.

⑫ VCR control



1. **Press the VIDEO ONE TOUCH OPERATION button to set the input selector of the monitor to VIDEO.**
2. **Turn on the MENU with the MENU button.**
3. **Press the POWER button to turn the power on.**

① **Stop (■) button**
Press to stop playback.

② **Rewind/Fast Forward (◀◀/▶▶) button**
This button allows high-speed movement through parts of the tape that you don't wish to watch. Press the left side of the button to rewind the tape, and the right side to advance the tape.
During playback, use this button to search visually forward or backward.
Keep on pressing the left or right side of the button until the section you wish to watch appears, then release it to resume normal speed playback.

③ **Pause (II) button**
Temporarily interrupts recording or playback, producing a still picture playback.

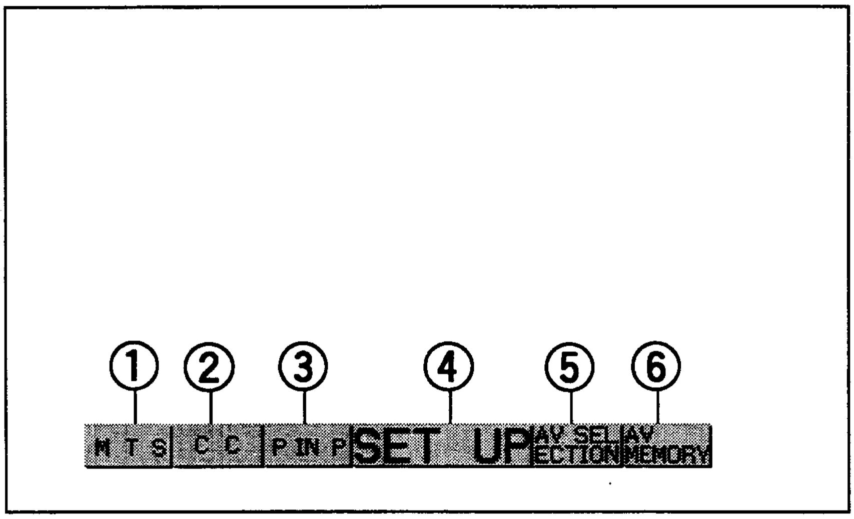
④ **Play (▶) button**
Press to begin playback.

⑤ **REC buttons**
Select this menu to start recording.

⑥ **VCR CHANNEL +/ – menu (monitor screen only)**
To select the channel of the TV tuner on the VCR.

•For SD-P5183 and SD-P4683

•When the MENNU button of the remote control unit is pressed, the following screen will be displayed.



① MTS menu

Select to choose the reception mode for multichannel TV. This will not be displayed when LD or VIDEO is selected with the INPUT SELECTOR button.

② CC MODE menu

Select to select the mode of displaying the character information contained in closed caption broadcasting.

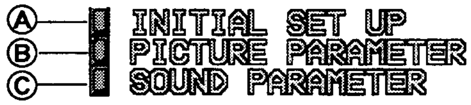
Select from OFF, CC-1, CC-2, CC-3, CC-4, T-1, T-2, T-3, or T-4.

③ Picture-in-Picture Control menu

Any program source connected to the Projection Monitor can be displayed on the screen simultaneously with any other source.

ON / OFF:	Press to turn the Picture-in-Picture function on and off.
INPUT:	Select to select the input source for the sub picture.
SWAP:	When only one subpicture is displayed, select to exchange the position of the main picture and subpicture.
SHIFT:	Select to move the subpicture to a different place on the screen.

④ SET UP menu



Ⓐ Select to perform each setting.

Ⓑ Adjust the picture quality parameter and sets VNR, PICTURE EQ.

Ⓒ Adjust the sound quality parameter and sets F. SURR (front surround) and SUPER BASS.

⑤ AV SELECTION menu

Select to call the picture and sound quality preset with the Projection Monitor.

⑥ AV MEMORY menu

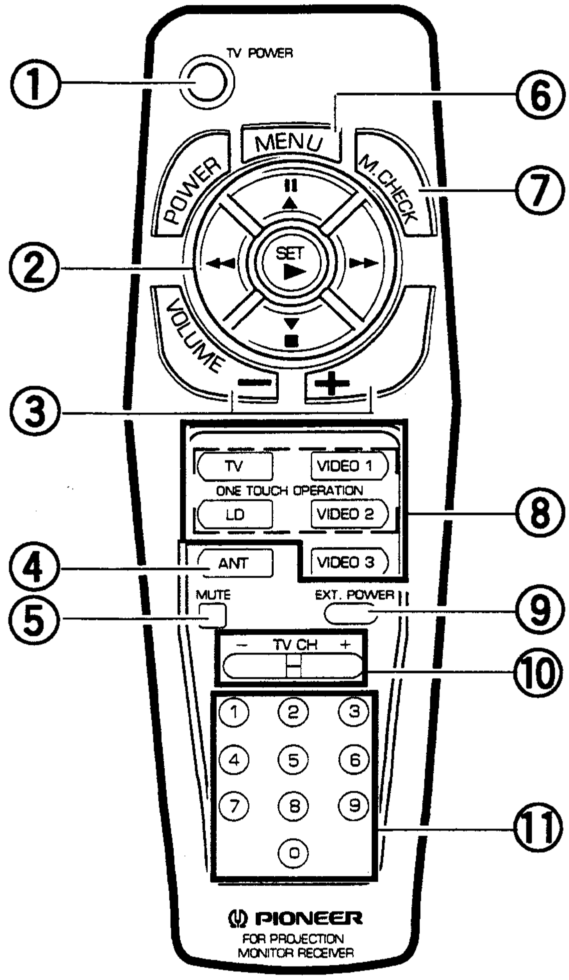
Select to recall and set the AV MEMORY.

NOTE:
The "EXIT" item may be displayed on the screen when selecting menus.
If EXIT is selected, the screen will return to previous display.

● REMOTE CONTROL UNIT FACILITIES

•For SD-P5185 and PRO-98

TV CONTROL BUTTONS



① TV POWER button

Turns the power on the monitor on and off.

② Select/Adjust/Set buttons (SET ▲, ▼, ◄, ►)

▲, ▼, ◄, ►:Press to select, adjust or set items on the menu screen.
SET: When the menu is on, press to execute an operation selected with the Select/Adjust buttons.

③ VOL (Volume) +, − buttons

Press the + button to increase the − button to decrease it. Volume adjustment will appear on the screen as numbers and a bar graph. '63' indicates the maximum volume level.
The display will disappear from the screen after 2 seconds.
*Volume display will change color automatically according to the selected input mode.
When AUDIO TV/SYS is set to AUDIO SYS, the sound volume of the connected receiver is adjusted.

Display colors
TV: Green
LD: Cyan (Greenish Blue)
VIDEO 1: Purple
VIDEO 2: Blue
VIDEO 3: Yellow

④ ANT (antenna selector) button

Press to switch between ANTENNA-A and ANTENNA-B when you wish to watch TV.

⑤ MUTE button

Press to temporarily turn off the sound. Press again to return to the previous volume level. This is useful, for example, when answering the telephone. The volume display will turn red while the mute function is engaged and will disappear from screen when the mute function is cancelled. If the mute function is left on for over approx. 8 minutes, the function will be cancelled automatically, and the volume level will be reset to 0.
When AUDIO TV/SYS is set to AUDIO SYS, the audio output of the connected receiver is muted.

⑥ MENU button

Press to turn on the menu screen for use in function selection. Press again to return to normal operation.
The selected items are displayed in purple, and the items can be selected with the ▲, ▼ ,◄ and ► buttons.

⑦ M. CHECK button

Indicates whether the menu is on or off.
When it is on, △, ▽, ◁ and ▷ light. When it is off, a ⑧ ONE TOUCH OPERATION button lights to indicate the current function.
If you press the button again while it is lit, remote control functions change. When the menu is on, ② Select/Adjust buttons (△, ▽, ◁ and ▷) light.

⑧ ONE TOUCH OPERATION buttons

TV, LD VIDEO1 , VIDEO2:
Pressing these buttons automatically calls up ONE TOUCH OPERATION setting.
Also, if power to this unit is OFF, it is switched ON, and operation automatically switches to the selected function.
VIDEO 3:
Press this button to select VIDEO 3.
ONE TOUCH OPERATION is not possible.

⑨ EXT. POWER button

Press to turn on/off the power of the external component connected receiver.

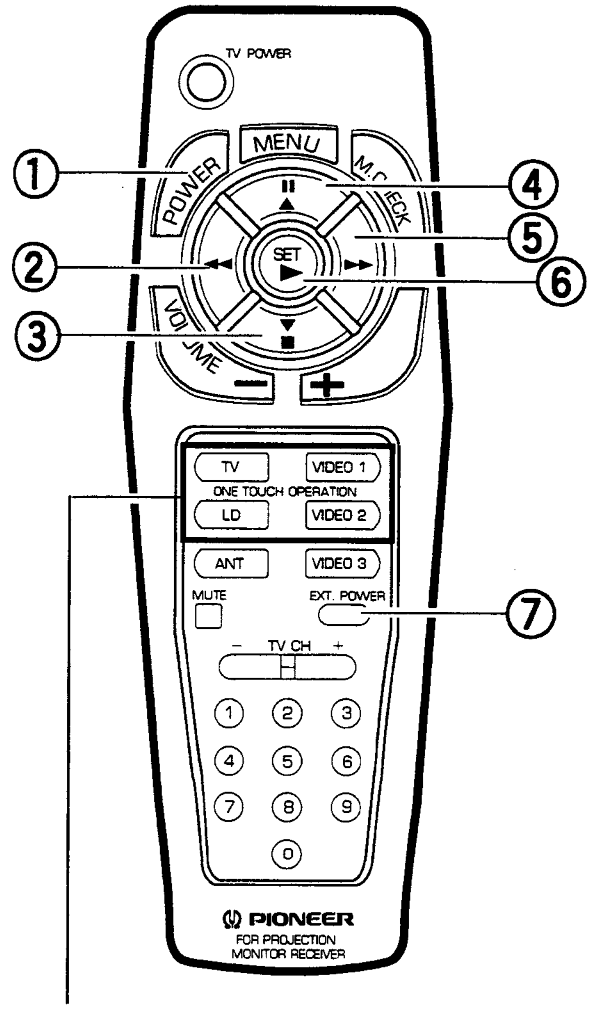
⑩ TV. CH (Channel) +, − buttons

Press plus (+) or minus (−) to tune in higher or lower channel. Only those channels in channel preset can be tuned in by this method.

⑪ Direct Channel Selection buttons

Press the button (or buttons) that correspond to the channel that you wish to watch, to switch directly to that channel from any other channel.

- When M. CHECK button is continuously pressed during the Main menu off, the remote control function is switched. At this time, a currently selected function lights up.
  Functions selected by the M. CHECk button or units selected by the ONE TOUCH OPERATION button can be controlled by the monitor power is in standby or off mode.



ONE TOUCH OPERATION buttons switch between each of the function.

VCR1/VCR 2 operation

① POWER button
Switches the VCR power ON/OFF.

② ◄◄ (REW) button
Rewinds the tape and arrows picture search.

③ ■ (STOP) button
Stops the tape transport.

④ II (PAUSE/STILL) button
Sets pause and still picture.

⑤ ►► (FF) button
Rapidly advances the tape and arrows picture search.

⑥ ► (PLAY) button
Selects playback.

LD player operation

① POWER button
Switches the LD player power ON/OFF.

② ◄◄ (SCAN/CHAPTER SEARCH) button
Pressing quickly once takes you to the start of the chapter currently playing. Each time you press it, you move back to the start of the previous chapter. Continue pressing to rewind.

③ ■ (STOP) button
Playback is stopped when pressed once.
With some LD players, pressing the button twice may open the disc tray.

④ II (PAUSE) button
Video and audio are stopped and playback is paused.

⑤ ►► (SCAN/CHAPTER SEARCH) button
Pressing quickly once takes you to the start of the next chapter: Each time you press it, you move ahead to the start of the next chapter. Continue pressing for fast forward.

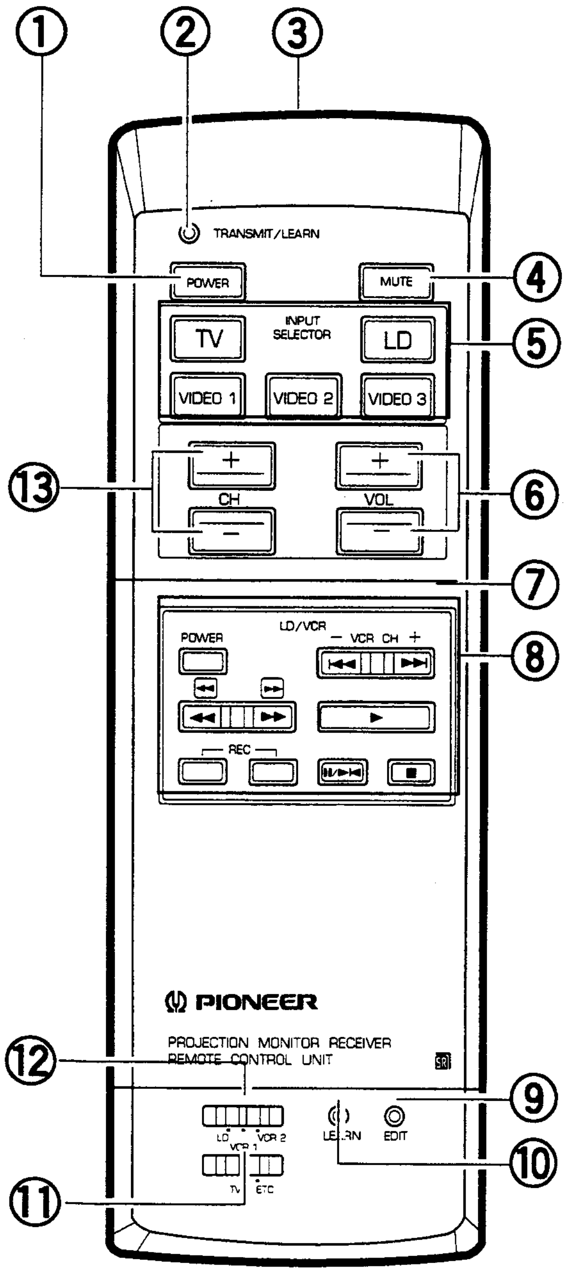
⑥ ► (PLAY) button
Selects playback.

Receiver operation

⑦ EXT. POWER button
Switches the Receiver power ON/OFF.

Note for operating other components:
- *REMOTE CONTROLLING OF ANY OTHER OF YOUR AUDIO-VISUAL COMPONENTS VIA THIS UNIT REQUIRES:*
  All components must be remote controllable (have a sensor window on the front panel) to receive a direct command from this unit, upon successful learning of those commands by this programmable unit.
- *Some models cannot operate a part of functions. In such case, use a remote control attached to the components.*

•For SD-P5183 and SD-P4683



① POWER button

Turns the power of the monitor on and off.

② TRANSMIT/LEARN indicator

Flashes when commands are being sent when one of the remote control buttons is pressed.

③ Transmitting and Remote Control Code Receiver Window

Transmits remote control signals using infrared rays.
When memorizing a remote control code, the window will function as an infrared receiver.

④ MUTE button

Press to temporarily turn off the sound. Press again to return to the previous volume level. This is useful, for example, when answering the telephone. The volume display will turn red while the mute function is engaged and will disappear from screen when the mute function is cancelled. If the mute function is left on for over approx. 8 minutes, the function will be cancelled automatically, and the volume level will be reset to 0.

⑤ INPUT SELECTOR buttons (TV/LD/VIDEO 1/VIDEO 2/VIDEO 3)

Press the button to select source you wish to watch. The screen will display your selection.

⑥ VOL (Volume) +, – buttons

Press the + button to increase the – button to decrease it. Volume adjustment will appear on the screen as numbers and a bar graph. '63' indicates the maximum volume level.
The display will disappear from the screen after 2 seconds.
* Volume display will change color automatically according to the selected input mode.

Display colors
TV: Green
LD: Cyan (Greenish Blue)
VIDEO 1: Purple
VIDEO 2: Blue
VIDEO 3: Yellow

⑦ Top panel

Operation buttons contained inside the top panel are for more attractive feature operations.

- After all operations are completed, make sure that the top panel is securely closed.

⑧ LD/VCR control buttons

If your LD player or VCR (video cassette recorder) is a PIONEER model bearing the SR mark, you can control the component using these buttons.

⑨ EDIT button

Press to set the preset code edit mode by setting Transmit Mode switch to LD, VCR 1 or VCR 2.

⑩ LEARN button

This setting activates the capability of the unit to "learn" and store command codes from other remote control units .

⑪ TV/ETC switch

Set to the position that corresponds to the component you wish to control, choose between the Projection Monitor and other LD player or video cassette recorder, using commands programmed in the remote control unit.

TV: To send remote control code commands to Pioneer marked models.
ETC: To send programmed commands.

⑫ Transmit Mode switch

Set to the position that corresponds to the component you wish to operate.

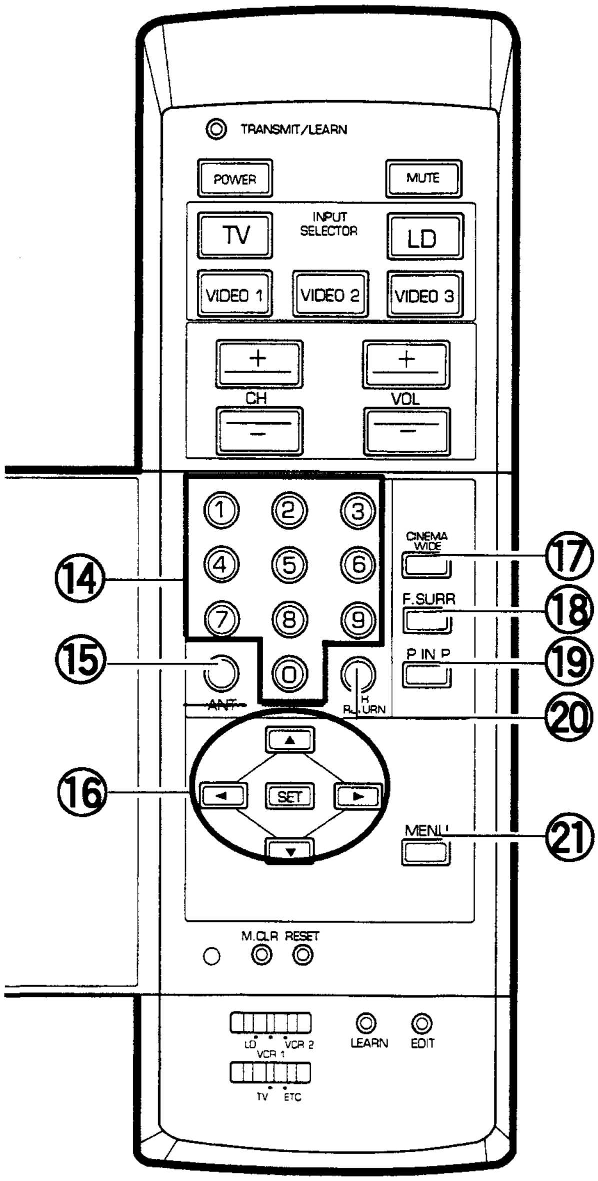
LD: To control the LD player.
VCR 1: To send commands to VCR 1.
VCR 2: No commands are preset.

- If you wish to use LD/VCR control buttons for VCR 2 remote control, store command codes from other remote control units in the LD/VCR control buttons.

⑬ CH (Channel) +, – buttons

Press plus (+) or minus (–) to tune in higher or lower channel. Only those channels in channel preset can be tuned in by this method.

Inside the top panel



⑭ Direct Channel Selection buttons

Press the button (or buttons) that correspond to the channel that you wish to watch, to switch directly to that channel from any other channel.

⑮ ANT (antenna selector) button

Press to switch between ANTENNA-A and ANTENNA-B when you wish to watch TV.

⑯ Select/Adjust/Set buttons (Set ▲, ▼, ◄, ►)

▲, ▼, ◄, ►:Press to select, adjust or set items on the menu screen.
SET: Press to activate the selected function.

⑰ CINEMA WIDE button

Press to select whether the normal picture is to be displayed (NORMAL CINEMA mode) or the letter - box size (U. S. Standard wide) picture is to be displayed to fill the screen (FULL CINEMA).

⑱ F.SURR button

Press to select front surround.

⑲ P IN P button

Press to turn the Picture-in-Picture function on and off.

⑳ CH RETURN (channel return) button

Press to switch between the current channel and the channel you were watching immediately before. This is useful, for example, if you wish to switch back and forth between two sporting events.

㉑ MENU button

Press to turn on the menu screen for use in function selection. Press again to return to normal operation.
The selected items are displayed in purple, and the items can be selected with the ▲, ▼ ,◄ and ► buttons.

15. CHANNEL PRESET AND PASSWORD CODE

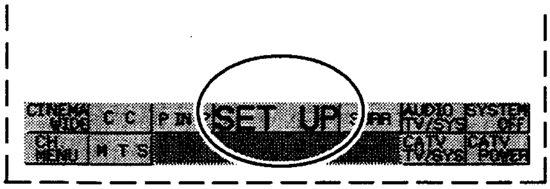
AUTO CHANNEL PRESET

•Automatically presets channels in your area.

When SD-P5185 and PRO-98

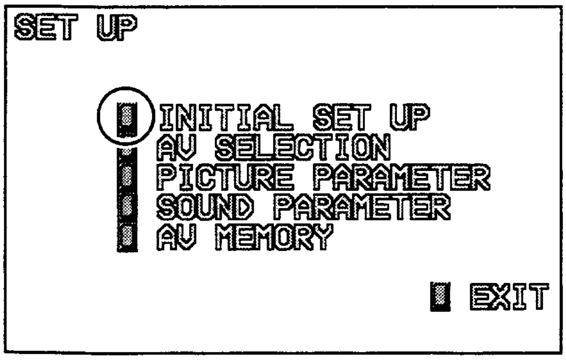
1 Set the input to TV with the ONE TOUCH OPERATION button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A CHXX" appears on the monitor screen.

2 Turn on the menu with the MENU button and press the ▲, ▼, ◄ or ► button so that the SET UP display turns purple.


CINEMA VIDEO
C C
PIN
SET UP
AUDIO TV/SYS
SYSTEM OFF
CH MENU
M T S
CATV TV/SYS
CATV POWER

3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.

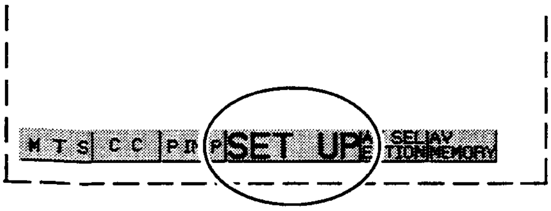
- The selected item (▮) turns purple.


SET UP
INITIAL SET UP
AV SELECTION
PICTURE PARAMETER
SOUND PARAMETER
AV MEMORY
EXIT

When SD-P5183 and SD-P4683

1 Set the input to TV with the INPUT SELECTOR button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A CHXX" appears on the monitor screen.

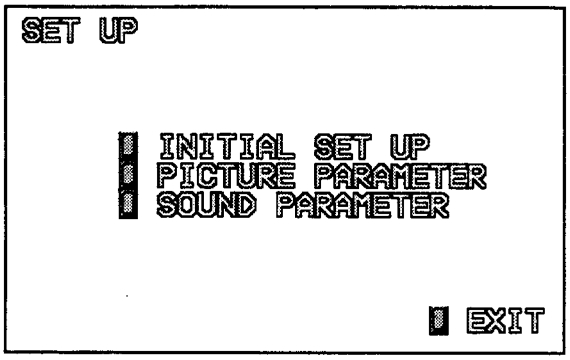
2 Turn on the menu with the MENU button and press the ◄ or ► button so that the SET UP display turns purple.


M T S
C C
PIP
SET UP
SEL AV
MEMORY

When SD-P5183 and SD-P4683

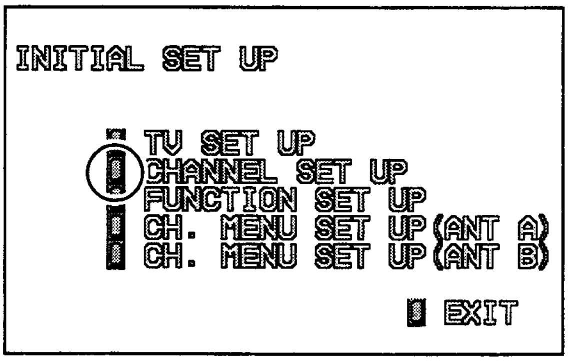
3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.

- The selected item (▮) turns purple.


SET UP
INITIAL SET UP
PICTURE PARAMETER
SOUND PARAMETER
EXIT

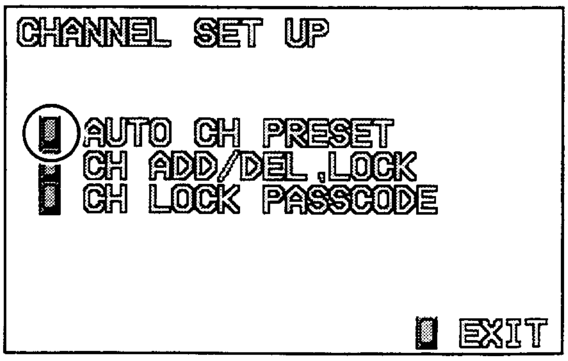
4 Turn on the INITIAL SET UP menu with the SET button and select the CHANNEL SET UP with the ▲ or ▼ button.

- The selected item (▮) turns purple.


INITIAL SET UP
TV SET UP
CHANNEL SET UP
FUNCTION SET UP
CH. MENU SET UP (ANT A)
CH. MENU SET UP (ANT B)
EXIT

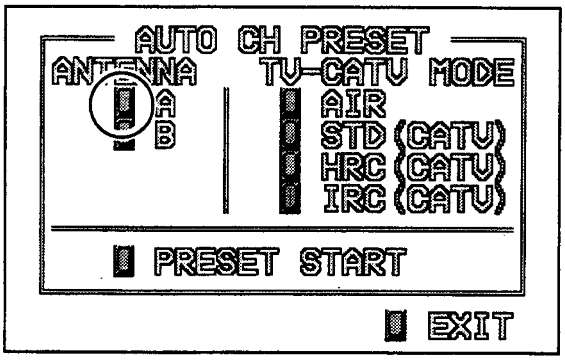
5 Turn on the CHANNEL SET UP menu with the SET button and select the AUTO CH PRESET with the ▲ or ▼ button.

- The selected item (▮) turns purple.


CHANNEL SET UP
AUTO CH PRESET
CH ADD/DEL,LOCK
CH LOCK PASSCODE
EXIT

6 Press the SET button and select A or B from the ANTENNA item with the ▲ or ▼ button.

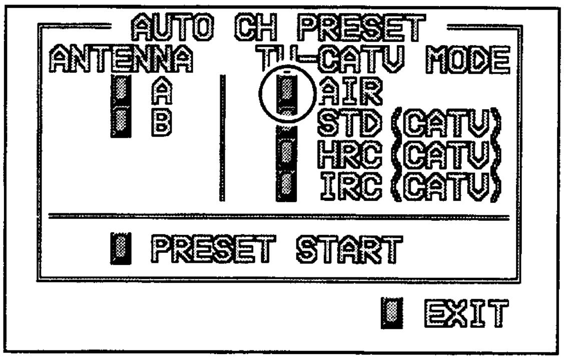
- The selected item (▮) turns purple.
- A is selected as an example.



```
AUTO CH PRESET
ANTENNA      TV-CATV MODE
 ▮ A        ▮ AIR
 ▮ B        ▮ STD (CATV)
            ▮ HRC (CATV)
            ▮ IRC (CATV)
 ▮ PRESET START
                    ▮ EXIT
```

7 Press the SET button (A turns yellow) and select AIR, STD, HRC or IRC from the TV-CATV mode with the ▲ or ▼ button.

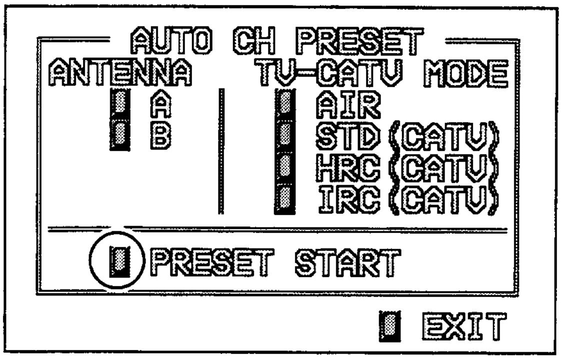
- The selected item (▮) turns purple.
- AIR is selected as an example.
- Ask your dealer or cable service provider which is correct for your local CATV system.



```
AUTO CH PRESET
ANTENNA      TV-CATV MODE
 ▮ A        ▮ AIR
 ▮ B        ▮ STD (CATV)
            ▮ HRC (CATV)
            ▮ IRC (CATV)
 ▮ PRESET START
                    ▮ EXIT
```

8 When the 6 and 7 settings are completed, Press the SET button.

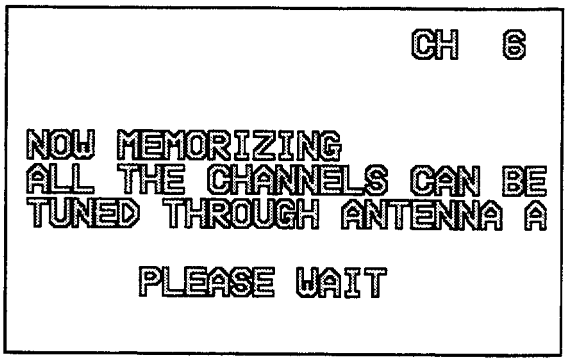
- The PRESET START (▮) turns purple.



```
AUTO CH PRESET
ANTENNA      TV-CATV MODE
 ▮ A        ▮ AIR
 ▮ B        ▮ STD (CATV)
            ▮ HRC (CATV)
            ▮ IRC (CATV)
 ▮ PRESET START
                    ▮ EXIT
```

9 Press the SET button.

- AUTO CHANNEL PRESET starts.



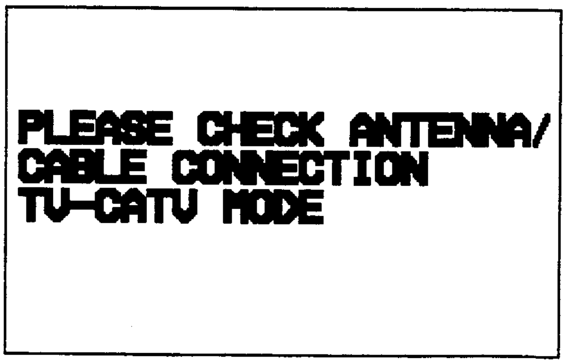
```
                         CH  6

NOW MEMORIZING
ALL THE CHANNELS CAN BE
TUNED THROUGH ANTENNA A

        PLEASE WAIT
```

- When AUTO CHANNEL PRESET ends, step 6 is returned, and ANTENNA B is selected automatically. Perform steps 7 and 8 if ANTENNA B is being used.

10 Press MENU button to return to normal operation.

NOTE:

- *If EXIT is selected, the screen will return to previous display. If AUTO CHANNEL PRESET is not performed, return to the display before by selecting EXIT after selecting TV-CATV mode, select CH. ADD/DEL, LOCK, and select the channel to be received.*
- *If the ANTENNA is not connected, the following will be displayed. Check if the antenna/cable is connected.*



```
PLEASE CHECK ANTENNA/
CABLE CONNECTION
TV-CATV MODE
```

ADDING, DELETING, AND LOCKING CHANNELS

- Channels preset can be added or deleted by AUTO CHANNEL PRESET.

ADD	Manually presets channels that were not preset by AUTO CHANNEL PRESET.
DEL	Deletes channels that are not required for reception. When this setting is set, the channels can be skipped when receiving channels with the + and - CH (channel) buttons.
CH LOCK	Sets channels so that they will be concealed from users who do not input the password code. The method of setting this function is described from 8 of page 181. See pages 182 and 183 for the method of inputting the password code.

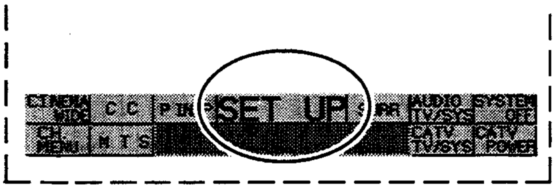
- Perform the following after completing AUTO CHANNEL PRESET.

When SD-P5185 and PRO-98

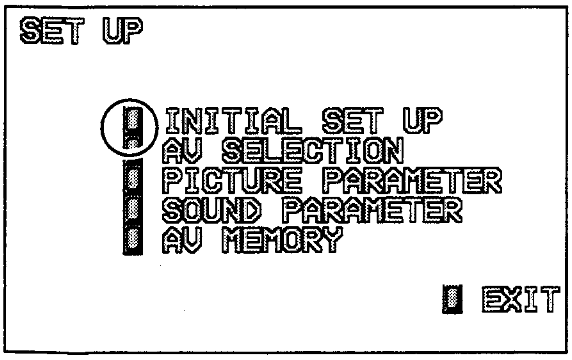
ANTENNA - A

1 Set the input to TV with the ONE TOUCH OPERATION button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A (ANT B) CHXX" appears on the monitor screen.

2 Turn on the menu with the MENU button and press the ▲, ▼, ◄ or ► button so that the SET UP display turns purple.

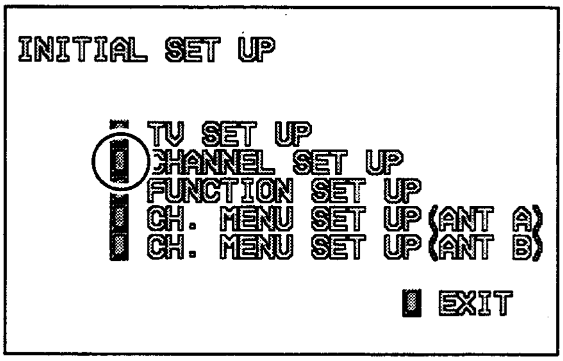

CINEMA WIDE
C C
PIN
SET UP
PR
AUDIO TV/SYS
SYSTEM OFF
CH. MENU
M T S
CATV TV/SYS
CATV POWER

3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.
- The selected item (▮) turns purple.


SET UP
INITIAL SET UP
AV SELECTION
PICTURE PARAMETER
SOUND PARAMETER
AV MEMORY
EXIT

When SD-P5185 and PRO-98

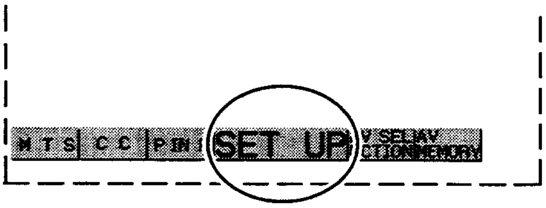
4 Turn on the INITIAL SET UP menu with the SET button and select the CHANNEL SET UP with the ▲ or ▼ button.
- The selected item (▮) turns purple.


INITIAL SET UP
TV SET UP
CHANNEL SET UP
FUNCTION SET UP
CH. MENU SET UP (ANT A)
CH. MENU SET UP (ANT B)
EXIT

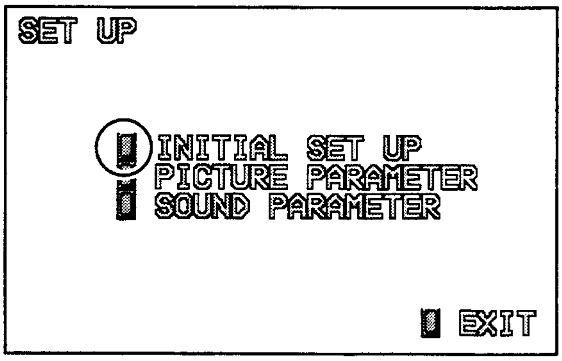
When SD-P5183 and SD-P4683

1 Set the input to TV with the INPUT SELECTOR button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A (ANT B) CHXX" appears on the monitor screen.

2 Turn on the menu with the MENU button and press the ◄ or ► button so that the SET UP display turns purple.

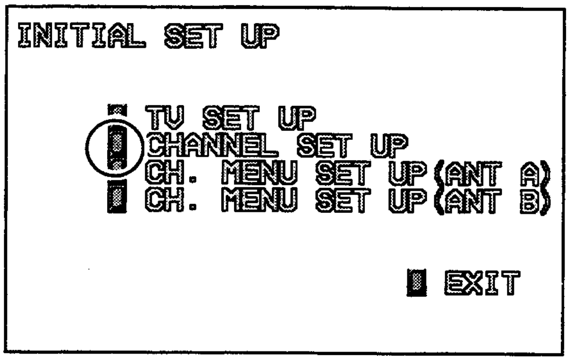

M T S
C C
PIN
SET UP
V SEL AV
ACTION MEMORY

3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.
- The selected item (▮) turns purple.

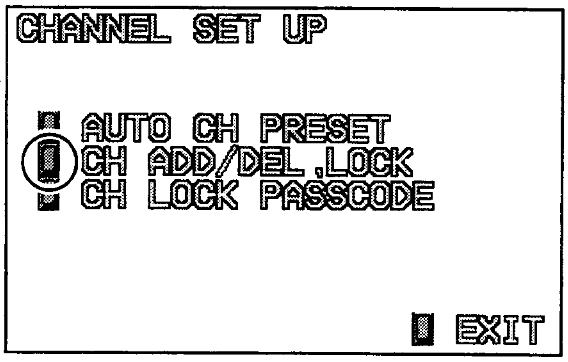

SET UP
INITIAL SET UP
PICTURE PARAMETER
SOUND PARAMETER
EXIT

When SD-P5183 and SD-P4683

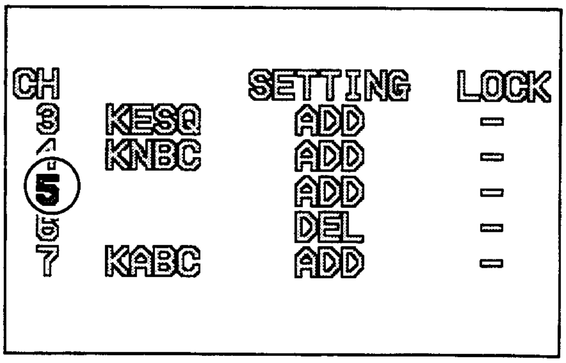
4 **Turn on the INITIAL SET UP menu with the SET button and select the CHANNEL SET UP with the ▲ or ▼ button.**
- The selected item (▮) turns purple.


INITIAL SET UP
TV SET UP
CHANNEL SET UP
CH. MENU SET UP (ANT A)
CH. MENU SET UP (ANT B)
EXIT

5 **Turn on the CHANNEL SET UP menu with the SET button and select the CH ADD/DEL, LOCK with the ▲ or ▼ button.**
- The selected item (▮) turns purple.


CHANNEL SET UP
AUTO CH PRESET
CH ADD/DEL ,LOCK
CH LOCK PASSCODE
EXIT

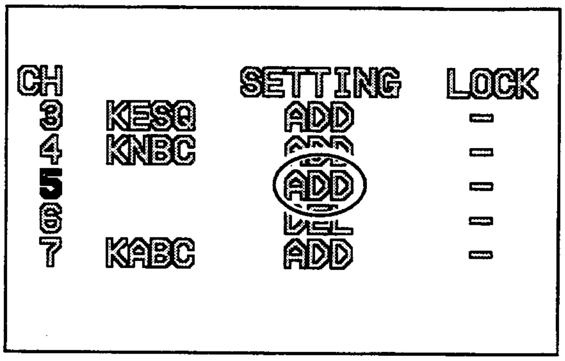
6 **Press the SET button and select the channels to be added and deleted with the ▲ or ▼ button.**
- The selected channel (Ex. 5) turns purple.



CH		SETTING	LOCK
3	KESQ	ADD	–
4	KNBC	ADD	–
5		ADD	–
6		DEL	–
7	KABC	ADD	–

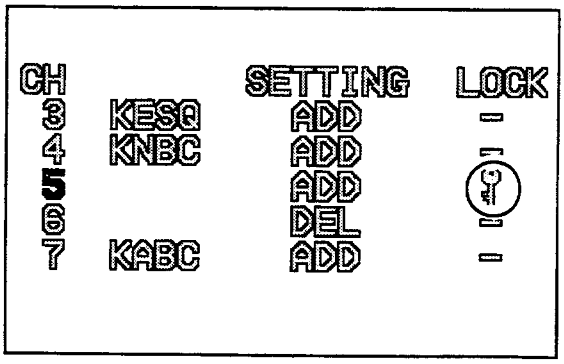
7 **(When SD-P5185 and PRO-98)**
Press the SET button and select ADD (add) or DEL (delete) with the ◄ or ► button.

7 **(When SD-P5183 and SD-P4683)**
Select ADD (add) or DEL (delete) with the ◄ or ► button.



CH		SETTING	LOCK
3	KESQ	ADD	–
4	KNBC	ADD	–
5		ADD	–
6		DEL	–
7	KABC	ADD	–

8 **Press the SET button and select channel lock (🔑) with the ◄ or ► button to lock the channel.**
- Can be set from the 🔑 to – only after the password code has been entered.



CH		SETTING	LOCK
3	KESQ	ADD	–
4	KNBC	ADD	–
5		ADD	🔑
6		DEL	–
7	KABC	ADD	–

NOTE:
- *If a channel has been locked, be sure to perform the ENTERING THE PASSWORD CODE setting.*
- *As CH LOCK locks the channel number, when the TV-CATV mode is changed, it has to be set again.*

9 **Press the SET button.**

10 **Repeat steps 6 to 8.**

11 **Press the MENU button to return to normal operation.**

ANTENNA – B
(SD-P5185 and PRO-98 only)

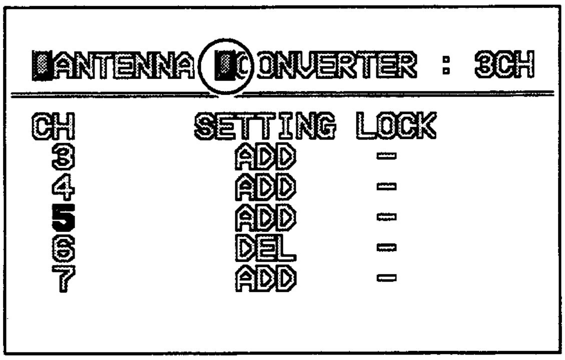
Setting performed to connect the cable box to ANTENNA-B and select channels using the Monitor's remote control.

1 Switch the ANTENNA-B with the ANT button.

2 Refer the steps 1 to 5 on pages 180 and 181.

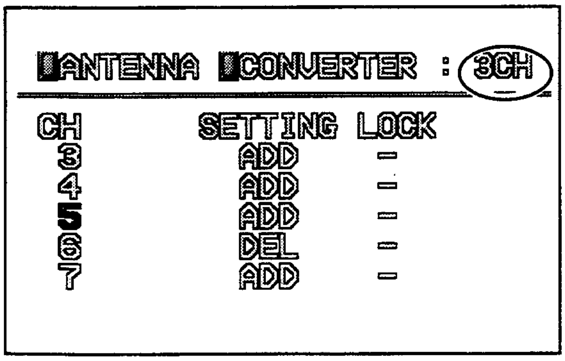
3 Press SET button and select CONVERTER with the ◄ or ► button.

- The selected item (■) turns purple.



```
■ANTENNA ■CONVERTER : 3CH
CH      SETTING LOCK
3         ADD     -
4         ADD     -
5         ADD     -
6         DEL     -
7         ADD     -
```

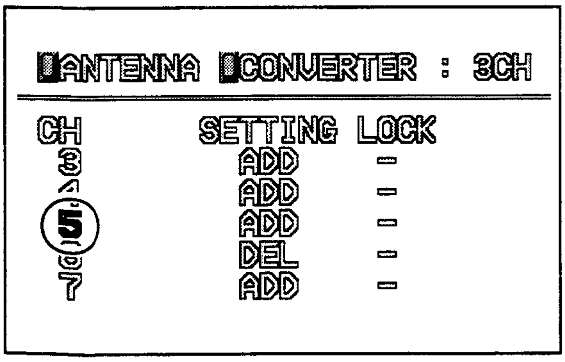
4 Press SET button (CONVERTER turns yellow) and select the CONVERTER's channel number with the SET button.



```
■ANTENNA ■CONVERTER : 3CH
CH      SETTING LOCK
3         ADD     -
4         ADD     -
5         ADD     -
6         DEL     -
7         ADD     -
```

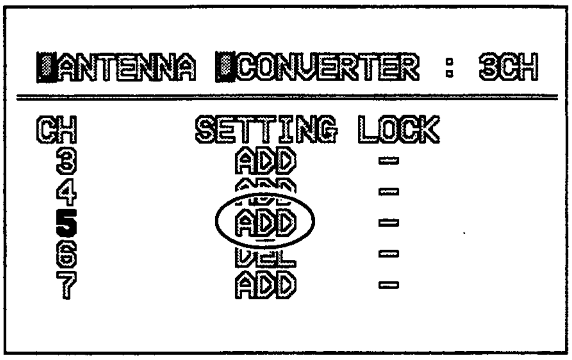
5 Select the CH number to be added and deleted with the ▲ or ▼ button.

- The selected channel (Ex. 5) turns purple.



```
■ANTENNA ■CONVERTER : 3CH
CH      SETTING LOCK
3         ADD     -
4         ADD     -
5         ADD     -
6         DEL     -
7         ADD     -
```

6 Select ADD (add) or DEL (delete) with the ◄ or ► button.



```
■ANTENNA ■CONVERTER : 3CH
CH      SETTING LOCK
3         ADD     -
4         ADD     -
5         ADD     -
6         DEL     -
7         ADD     -
```

7 Refer to the steps 8 to 11 on page 181.

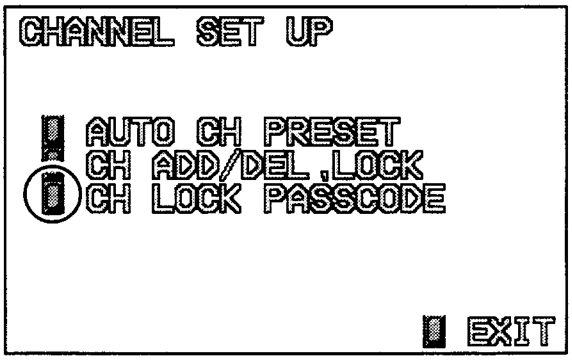
ENTERING THE PASSWORD CODE FOR CHANNEL LOCK

- Enter the password codes. You can view the locked channel program.

1 Perform steps 1 to 4 of page 180.

2 Turn on the CHANNEL SET UP menu with the SET button and select the CH LOCK PASSCODE with the ▲ or ▼ button.

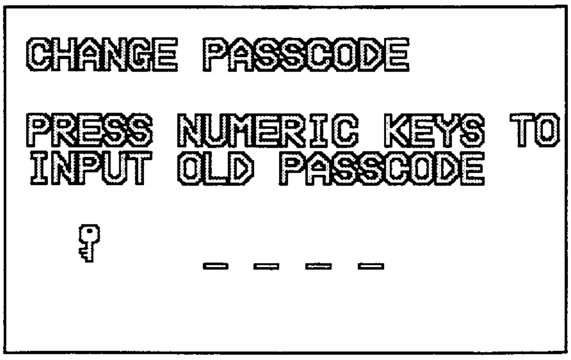
- The selected item (■) turns purple.



```
CHANNEL SET UP

■ AUTO CH PRESET
■ CH ADD/DEL ,LOCK
■ CH LOCK PASSCODE

                    ■ EXIT
```

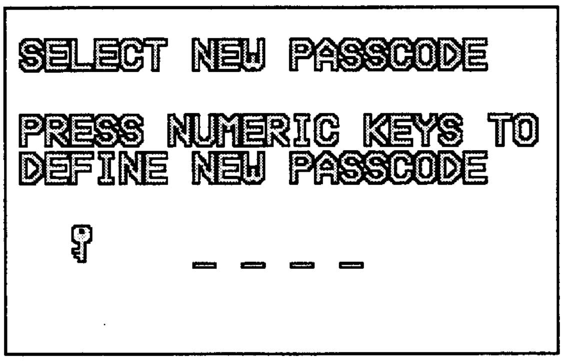
3 Press the SET button and input the old password code with the numerical buttons of the remote control unit.

- This password code is set to "0000" when the monitor leaves the factory.



```
CHANGE PASSCODE

PRESS NUMERIC KEYS TO
INPUT OLD PASSCODE

      - - - -
```

4 Input the new password code with the numerical buttons of the remote control unit.



SELECT NEW PASSCODE

PRESS NUMERIC KEYS TO
DEFINE NEW PASSCODE

_ _ _ _

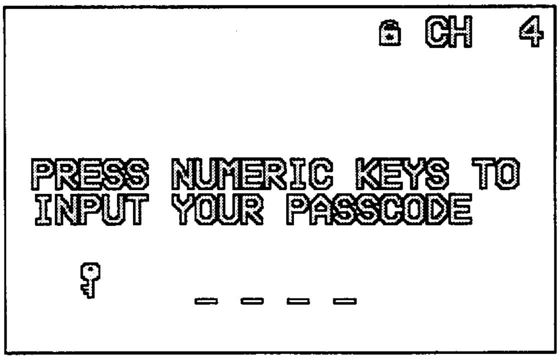
5 Press the MENU button to return to normal operation.

NOTES:

- *The locked channel will not be registered unless the power is turned off once.*

To view channel locked.

1. Select the locked channel.
- The following will be displayed.



CH 4

PRESS NUMERIC KEYS TO
INPUT YOUR PASSCODE

_ _ _ _

2. Enter the password code.

•If you forget the password code

Press the RETURN button on the front panel for more than four seconds. The password code will become "0000".

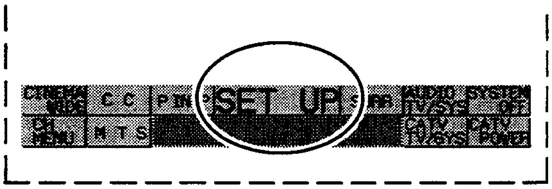
Channel lock password code No.

☐ ☐ ☐ ☐

SET THE CH. MENU
(For SD-P5185 and PRO-98)

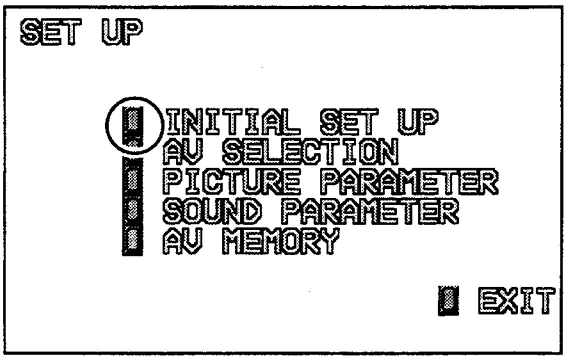
You can change the channel label preset with AUTO CHANNEL PRESET and set the priority order of displaying channels on the TV screen.
The input label can be up to 4 characters long using the 43 characters, including - (space), listed below.

1 Turn on the menu with the MENU button and press the ▲, ▼, ◄ or ► button so that the SET UP display turns purple.


CINEMA WIDE
C C
PIN
SET UP
RF
AUDIO TV/SYS
SYSTEM OFF
CH. MENU
M T S
CATV TV/SYS
CATV POWER

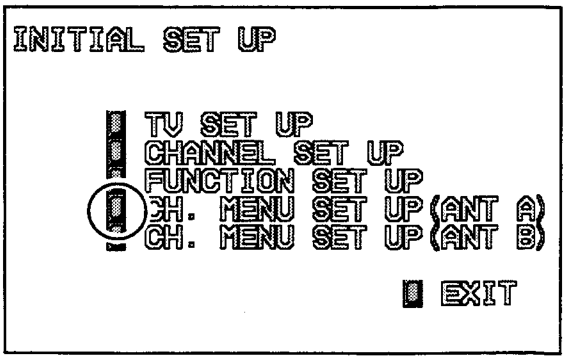
2 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.

- The selected item (▮) turns purple.


SET UP
▮ INITIAL SET UP
▮ AV SELECTION
▮ PICTURE PARAMETER
▮ SOUND PARAMETER
▮ AV MEMORY
▮ EXIT

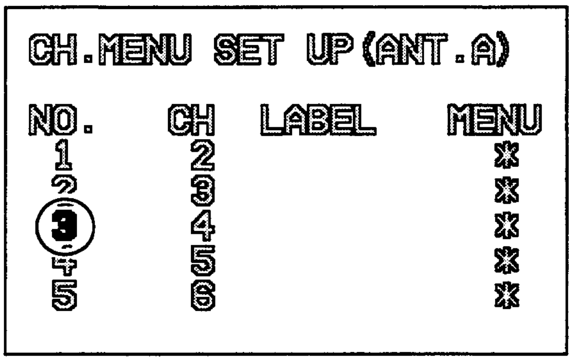
3 Turn on the INITIAL SET UP menu with the SET button and select the CH. MENU SET UP (ANT A or ANT B) with the ▲ or ▼ button.

- The selected item (▮) turns purple.


INITIAL SET UP
▮ TV SET UP
▮ CHANNEL SET UP
▮ FUNCTION SET UP
▮ CH. MENU SET UP (ANT A)
▮ CH. MENU SET UP (ANT B)
▮ EXIT

4 Press the SET button and select the number with the ▲ or ▼ button.

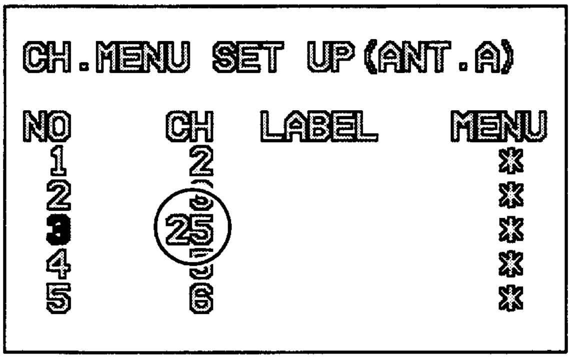
- In case a previously entered station label is to be modified, select the channel using the ▲ and ▼ button. (The selected channel number and the station label turn purple).



CH.MENU SET UP(ANT.A)

NO.	CH	LABEL	MENU
1	2		✻
2	3		✻
3	4		✻
4	5		✻
5	6		✻

5 Select a number with the ◄ or ► button and press the SET button.

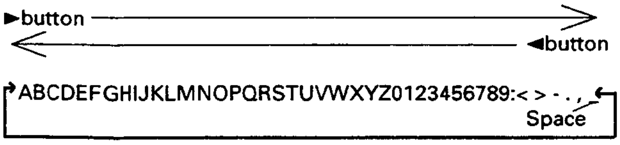


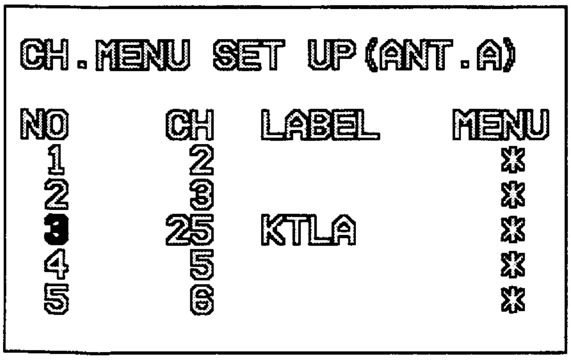
CH.MENU SET UP(ANT.A)

NO	CH	LABEL	MENU
1	2		✻
2	3		✻
3	25		✻
4	5		✻
5	6		✻

6 Press the SET button and select a character with the ◄ or ► button, and press the SET button.

- By repeating steps 4 and 5, station labels of up to 20 channels can be entered.
- To enter the input labels in No.6 to No. 20, press ▼ to make the number appear on the screen, then follow steps 4 and 5.





CH.MENU SET UP(ANT.A)

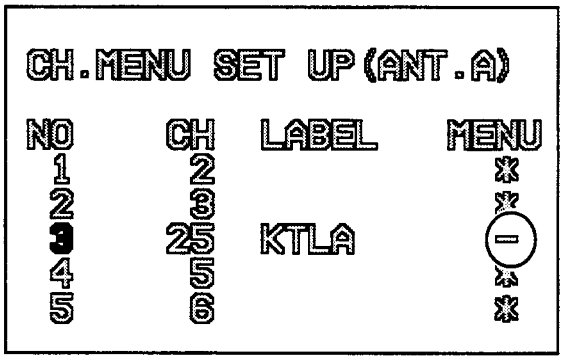
NO	CH	LABEL	MENU
1	2		✻
2	3		✻
3	25	KTLA	✻
4	5		✻
5	6		✻

- UP to 4 characters can be entered by repeating step 6.

7 Press the SET button to select the setting channels displayed on the monitor screen or not with the ◄ or ► button.

✻ ...... If ▲, ▼, ◄ or ► button is pressed when INPUT SELECTOR is set to TV, the channel will be displayed on the Monitor screen.

− ...... If ▲, ▼, ◄ or ► button is pressed when INPUT SELECTOR is set to TV, the channel will not be displayed on the Monitor screen.



CH.MENU SET UP(ANT.A)

NO	CH	LABEL	MENU
1	2		✻
2	3		✻
3	25	KTLA	−
4	5		✻
5	6		✻

8 Press the MENU button to return to normal operation.

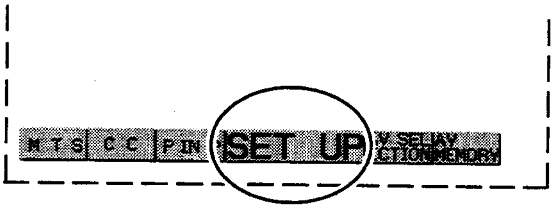
NOTES:

- *When selecting the channel, if any character (not number) is input in the first digit, the setting in progress will be cancelled and the previously set channel will be displayed. To make setting for channel 1-9, channel 2 for example, first enter 0 or _ (space), then 2.*

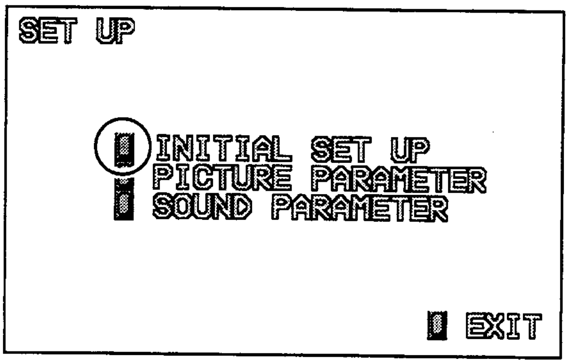
SET THE CH. MENU
(For SD-P5183 and SD-P4683)

You can change the channel label preset with AUTO CHANNEL PRESET and set the priority order of displaying channels on the TV screen.
The input label can be up to 4 characters long using the 43 characters, including - (space), listed below.

1 **Turn on the menu with the MENU button and press the ▲ or ▼ button so that the SET UP display turns purple.**



2 **Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.**
- The selected item (▮) turns purple.

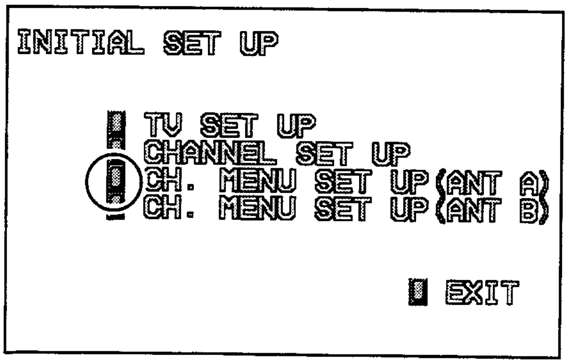


SET UP

▮ INITIAL SET UP
▮ PICTURE PARAMETER
▮ SOUND PARAMETER

▮ EXIT

3 **Turn on the INITIAL SET UP menu with the SET button and select the CH. MENU SET UP (ANT A or ANT B) with the ▲ or ▼ button.**
- The selected item (▮) turns purple.

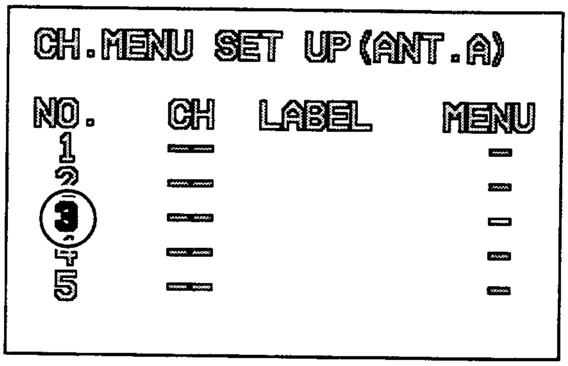


INITIAL SET UP

▮ TV SET UP
▮ CHANNEL SET UP
▮ CH. MENU SET UP (ANT A)
▮ CH. MENU SET UP (ANT B)

▮ EXIT

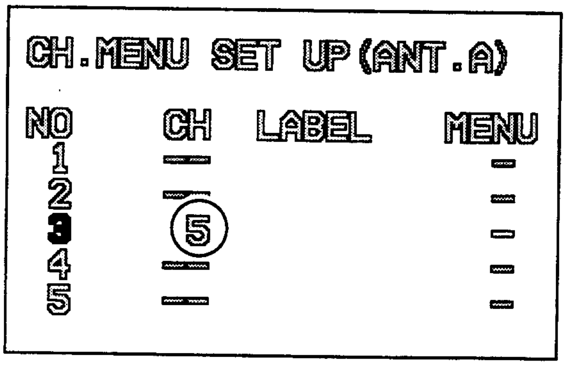
4 **Press the SET button and select the number with the ▲ or ▼ button.**
- In case a previously entered station label is to be modified, select the channel using the ▲ and ▼ button. (The selected channel number turn purple).



CH. MENU SET UP (ANT. A)

NO.	CH	LABEL	MENU
1	—		—
2	—		—
3	—		—
4	—		—
5	—		—

5 **Select a number with the ◄ or ► button and press the SET button.**



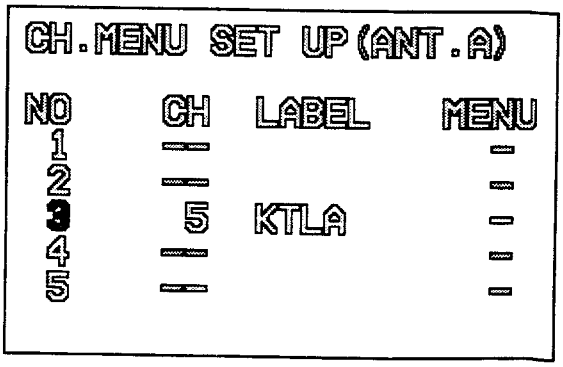
CH. MENU SET UP (ANT. A)

NO	CH	LABEL	MENU
1	—		—
2	—		—
3	5		—
4	—		—
5	—		—

6 **Press the SET button and select a character with the ◄ or ► button, and press the SET button.**
- By repeating steps 4 and 5, station labels of up to 20 channels can be entered.
- To enter the input labels in No.11 to No. 20, press ▼ to make the number appear on the screen, then follow steps 4 and 5.

►button →
← ◄button

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789:< > - . ,
Space



CH. MENU SET UP (ANT. A)

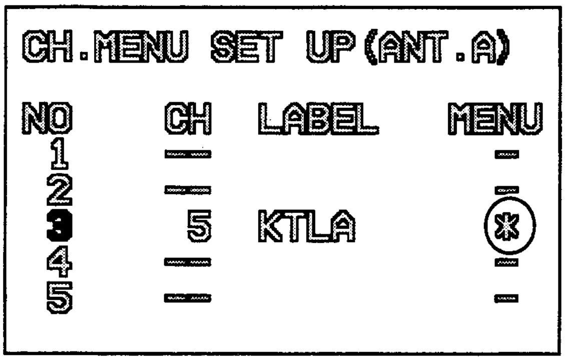
NO	CH	LABEL	MENU
1	—		—
2	—		—
3	5	KTLA	—
4	—		—
5	—		—

- UP to 4 characters can be entered by repeating step 6.

7 Press the SET button to select the setting channels displayed on the monitor screen or not with the ◄ or ► button.

✲ ...... If ▲, ▼, ◄ or ► button is pressed when INPUT SELECTOR is set to TV, the channel will be displayed on the Monitor screen.

▭ ...... If ▲, ▼, ◄ or ► button is pressed when INPUT SELECTOR is set to TV, the channel will not be displayed on the Monitor screen.



CH.MENU SET UP(ANT.A)

NO	CH	LABEL	MENU
1	—		–
2	—		–
3	5	KTLA	✲
4	—		–
5	—		–

8 Press the MENU button to return to normal operation.

NOTES:

- *When selecting the channel, if any character (not number) is input in the first digit, the setting in progress will be cancelled and the previously set channel will be displayed. To make setting for channel 1-9, channel 2 for example, first enter 0 or _ (space), then 2.*

16. SPECIFICATIONS

● For SD-P5185

DISPLAY SECTION

Reception system	American TV standard NTSC system
Screen size	60"(SD-P6085) 51"(SD-P5185)
CRT	7"High focus CRTx3
Brightness (White peak)	430 Foot-Lambert (SD-P6085) 600 Foot-Lambert (SD-P5185) [100% Window signal input contrast, bright Max.]
Horizontal resolution	1000 lines(SD-P6085) 830 lines(SD-P5185) [Input digital test pattern (900 lines resolution)]
Input terminals	4 video input systems, S-VIDEO input jacks(Y/C separate INPUT) x 4 audio input systems
Output terminals	REC OUTPUT(To VIDEO-1) Video output, audio output(For recording)x1
	TV OUTPUT(Ex. to Audio/Video amplifier) x1
System remote control terminals	IN/OUT
Input signal	Video signal:1.0 Vp-p ± 0.2V(75 ohms load) Audio signal: 500mV rms
Input impedance	Video input: 75 ohms ± 10% Audio input: 22 kilo-ohms or more
Input signal polarity	Synchronized negative
Output terminal signal ratings:	
Output terminals	
(VIDEO-1)	Video signal: 1 Vp-p(75 ohms load) Audio signal: 500 mV rms (100% modulation)
Output impedance	Video output: 75 ohms ± 10% Audio output: Less than 1 kilo-ohms
Audio output terminal	Audio signal: 500 mV rms (100% modulation Volume MAX.)

TUNER SECTION

Circuit type	Video signal detection: PLL full synchronous detection PLL digital synthesizer system Audio multiplex:BTSC system
Reception channels	VHF; CH2~CH13, UHF; CH14~CH69 CATV(STANDARD, IRC or HRC switchable) CATV 1 CH~125CH
Antenna terminals	ANTENNA terminals x 2, 75 ohms UNBAL, F-type connector(VHF, UHF MIXED)

AMPLIFIER SECTION

Effective output	
Front both channels driven	10Wx10W (THD.1% 50Hz to 15,000Hz, 8 ohms)
Tone control:	
BASS	8dB, 10dB(100Hz)
TREBLE	8dB, 10dB(10kHz)
Built-in speaker system	16 cm (6-1/2 in) Full rangex2 External speaker impedance 8x16 ohms

ELECTRICAL SECTION,MISCELLANEOUS

Power requirements	120 V AC, 60Hz
Power consumption	280 W, 520 VA(CSA)
External dimensions	
SD-P6085	1431 (W) x 675 (D) x 1429 (H) mm 56-5/16 (W) x 26-9/16 (D) x 56-1/4 (H) inch
SD-P5185	1240 (W) x 655 (D) x 1302 (H) mm 48-13/16 (W) x 25-3/4 (D) x 51-1/4 (H) inch
Weight of main unit	
SD-P6085	125 kg (275 lb 10 oz.)
SD-P5185	118 kg (260 lb 3 oz.)

WIRELESS REMOTE CONTROL UNIT

Operation system	Programmable infrared remote control system
Power source	DURACELL®"AA"MN1500 1.5V alkaline dry cell batteries
Dimensions	54 (W) x 42 (H) x 162 (D) mm 2-1/8 (W) x 1-5/8 (H) x 6-3/8 (D) inch
Weight	100g (3 oz) (without batteries)

ACCESSORIES

Operating instructions	1
Warranty card	1
Remote control unit	1
DURACELL®"AA"MN15001.5 V alkaline dry cell batteries	2
Important Safeguards card	1
Main repeater	1
Mini repeater	1
Acrylic panel	1
Acrylic panel holder H	2
Acrylic panel holder V	2

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

● For SD-P5183 and SD-P4683

DISPLAY SECTION

Reception system .... American TV standard NTSC system
Screen size .... 51"(SD-P5183)
46"(SD-P4683)
CRT .... 7"High focus CRTx3
Brightness (White peak) .... 600 Foot-Lambert (SD-P5183)
700 Foot-Lambert (SD-P4683)
[100% Window signal input contrast, bright Max.]
Actual viewing angle .... Horizontal H = 140°
.... Vertical V = 45°
Horizontal resolution .... 830 lines(SD-P5183)
770lines(SD-P4683)
[Input digital test pattern (900 lines resolution)]
Input terminals .... 4 video input systems,
S-VIDEO input jacks(Y/C separate INPUT)
4 audio input systems
Output terminals .... REC OUTPUT (To VIDEO-1)
Video output, audio output(For recording)x1
TV OUTPUT(Ex. to Audio/Video amplifier) x1
System remote control terminals .... IN/OUT
Input signal ...... Video signal:1.0 Vp-p ± 0.2V(75 ohms load)
Audio signal: 500mV rms
Input impedance .... Video input: 75 ohms ± 10%
Audio input: 22 kilo-ohms or more
Input signal polarity .... Synchronized negative
Output terminal signal ratings:
Output terminals
(VIDEO-1) .... Video signal: 1 Vp-p(75 ohms load)
Audio signal: 500 mV rms(100% modulation)
Output impedance .... Video output: 75 ohms ± 10%
Audio output: Less than 1 kilo-ohms
Audio output terminal .... Audio signal: 500 mV rms
(100% modulation Volume MAX.)

TUNER SECTION

Circuit type .... Video signal detection:
PLL full synchronous detection
PLL digital synthesizer system
Audio multiplex:BTSC system
Reception channels...... VHF; CH2~CH13, UHF; CH14~CH69
.... CATV(STANDARD, AIR, IRCor HRC switch able)
CATV 1CH~125CH
Antenna terminals
.... ANTENNA terminal,75 ohms UNBAL,
.... F-type connector(VHF, UHF MIXED)

AMPLIFIER SECTION

Effective output
Front both channels driven 10Wx10W
(THD.1% 50Hz to 15.000Hz, 8 ohms)
Tone control:
BASS 8dB, 10dB (100Hz)
TREBLE 8dB, 10dB (10kHz)
Built-in speaker system .... 16 cm (6-1/2 in) Full range x 2
External speaker impedance 8 – 16 ohms

ELECTRICAL SECTION,MISCELLANEOUS

Power requirements .... 120 V AC, 60Hz
Power consumption .... 280 W, 520 VA(CSA)
External dimensions
SD-P5183 .... 1240 (W) x 655 (D) x 1302 (H) mm
48-13/16 (W) x 25-3/4 (D) x 51-1/4 (H) inch
SD-P4683 .... 1134 (W) x 605 (D) x 1232 (H) mm
44-5/8 (W) x 23-13/16 (D) x 48-1/2 (H) inch

Weight of main unit
SD-P5183 .... 101 kg (222 lb 11 oz.)
SD-P4683 .... 88 kg (194 lb)

WIRELESS REMOTE CONTROL UNIT

Operation system .... Programmable infrared
remote control system
Power source
.. Two DURACELL®"AA"MN15001.5V alkaline dry cell batteries
Dimensions .... 66 (W) x 37.5 (H) x 199 (D) mm
2-5/8 (W) x 1-1/2 (H) x 7-13/16 (D) inch
Weight .... 140g (5 oz) (without batteries)

ACCESSORIES

Operating instructions 1
Warranty card 1
Remote control unit 1
Two DURACELL®"AA"MN1500
1.5V alkaline dry cell batteries 2
Important Safeguards card 1

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

● For PRO-98

DISPLAY SECTION

Reception system	American TV standard NTSC system
Screen size	60"(PRO-118) 51"(PRO-98)
CRT	7"High focus CRT×3
Brightness (White peak)	400 Foot-Lambert (PRO-118) 550 Foot-Lambert (PRO-98) [100% Window signal input contrast, over Max.]
Horizontal resolution	1000 lines [Input digital test pattern (900 lines resolution)]
Input terminals	4 video input systems, S-VIDEO input jacks (Y/C separate INPUT) × 4 4 audio input systems BNC input jack × 1 CENTER IN jack × 1
Output terminals	REC OUTPUT (To VIDEO-1) Video output, audio output (For recording)×1 TV OUTPUT (Ex. to Audio/Video amplifier) ×1
System remote control terminals	IN/OUT
Input signal	Video signal:1.0 Vp-p ± 0.2V(75 ohms load) Audio signal: 500mV rms
Input impedance	Video input: 75 ohms ± 10% Audio input: 22 kilo-ohms or more
Input signal polarity	Synchronized negative
Output terminal signal ratings:	
Output terminals	
(VIDEO-1)	Video signal: 1 Vp-p(75 ohms load) Audio signal: 500 mV rms(100% modulation)
Output impedance	Video output: 75 ohms ± 10% Audio output: Less than 1 kilo-ohms
Audio output terminal	Audio signal: 500 mV rms (100% modulation Volume MAX.)

TUNER SECTION

Circuit type	Video signal detection: PLL full synchronous detection PLL digital synthesizer system Audio multiplex:BTSC system
Reception channels	VHF; CH2~CH13, UHF; CH14~CH69 CATV(STANDARD, IRC or HRC switch able) CATV 1CH ~125CH
Antenna terminals	ANTENNA terminals×2 ,75 ohms UNBAL, F-type connector(VHF, UHF MIXED)

AMPLIFIER SECTION

Effective output	
Front both channels driven	10W×10W (THD.1% 50Hz to 15,000Hz, 8 ohms)
Tone control:	
BASS	8dB, 10dB(100Hz)
TREBLE	8dB, 10dB(10kHz)
Built-in speaker system	16 cm (6-1/2 in) full range×2 External speaker impedance 8×16 ohms

ELECTRICAL SECTION, MISCELLANEOUS

Power requirements	120 V AC, 60Hz
Power consumption	300 W, 550 VA(CSA)
External dimensions	
PRO-118	1316 (W) × 675 (D) × 1429 (H) mm 51-3/4 (W) × 26-9/16 (D) × 56-1/4 (H) inch
PRO-98	1170 (W) × 655 (D) × 1302 (H) mm 46-1/16 (W) × 25-3/4 (D) × 51-1/4 (H) inch
Weight of main unit	
PRO-118	138 kg(304 lb 4 oz.)
PRO-98	116 kg(255 lb 12 oz.)

WIRELESS REMOTE CONTROL UNIT

Operation system	Programmable infrared remote control system
Power source	DURACELL®"AA" MN1500 1.5 V alkaline dry cell batteries
Dimensions	54(W)×42(H) ×162(D) mm 2-1/8(W)×1-5/8(H)×6-3/8(D) inch
Weight	100g(3 oz)(without batteries)

ACCESSORIES

Operating instructions	1
Warranty card	1
Remote control unit	1
DURACELL®"AA" MN1500 1.5 V alkaline dry cell batteries	2
Important Safeguards card	1
MAIN REPEATER	1
MINI REPEATER	1
Protective screen	1
Magic tape A	2
Magic tape B	2
Upper frame	2
Lower frame	2
Side frame cover	2
Screw 14.3 MM	12 (PRO-118) 8 (PRO-98)
Screw 10 MM	12 (PRO-118) 8 (PRO-98)

NOTE:

Specifications and design subject to possible modifications without notice due to improvements.